

ever, was to make results and ideas available to archaeologists and enable them to make further use of them in their own work.

For this reason one finds nowhere in the text the suggestion attributed to me by Thrane, that the Trundholm sun-chariot might date from the urnfield period. I am content to leave detailed study of such questions to the archaeologists. My only wish is to point out that gold with added copper is an exception in Montelius II. This is a fact now established by the tables of analyses, which ought not be overlooked in any future examination of the dating of the sun chariot.

Thrane's remark that the 20 wire rings with flat leaf-shaped ends shown in Pl. 28 are incorrectly attributed to Montelius VI and probably are from the Copper Age, is naturally of great value. In the Bronze Age exhibition of the National Museum, of which H. Thrane was in charge when the samples were taken, they were exhibited as Late Bronze Age. Confident in the rightness of this attribution I placed the 20 wire rings in Pl. 28, but am now naturally most grateful for the correction after a delay of fifteen years. It shows how valuable the participation of the National Museum would have been a step further than to the mere taking the metal samples.

Of some of these wire rings, which are now known to be very early, the observation may be made that pairs found together sometimes differ strikingly in composition (incidentally Au 3724 was not found with Au 3737 but with Au 3727). This is somewhat unusual, as in later periods gold ornaments found together in pairs are generally of very similar composition. This observation in the case of these early pieces ought not to confuse "us poor archaeologists", as Thrane opines, but make one appreciate that at that time the objects were not made in pairs simultaneously by the same goldsmith, but more likely at separate times and places. Apparently gold was not yet so abundantly available that pairs of ornaments could always be produced together.

At this stage it already becomes obvious how wrong it is to approach experimental data – in this case the gold analyses – with preconceived notions and fixed expectations, for objective statistics seldom confirm subjective prejudice. Thus Thrane is disappointed to discover how little the gold from the hoard from Råddenkjær bog in central Jutland, with its unambiguous attachment to group N and NC, differs from the gold of other Bronze Age finds in Denmark, although the forms at Råddenkjær suggest an origin far away to the south-east. This disappointment is due clearly to an attitude of expectation, that is unjustified and leads nowhere so long as maintained. One ought instead to adduce from this surprising result that the same gold N was used in the south-eastern area where this object originated, as in Bronze Age Denmark. As all the gold used in Denmark in view of the obvious lack of local occurrences must have come through some kind of trade, this might have given a first clue to the direction from which gold of type N may have been imported. Certainly no occasion for disappointment!

We have H. Thrane's vigilance to thank in the last part of his review for calling attention to various mistakes and printing errors. The incorrect provenances given for Au 3575, Au 3847,

Au 3853–54, and Au 4055 may be attributed to mistakes in the lists sent to Stuttgart. These were prepared under Thrane's supervision by a female student at the National Museum, myself being unable to read the inventories. When Thrane calls attention to the fact that in SAM 5 the Danish place names are not always spelled correctly (e.g. Brønsted instead of Brøndsted, Tjærborg instead of Tjæreborg, Tudved instead of Tudvad, etc.), these mistakes are regrettable, but in some cases spelling variants may have played a part.

Thus in the penultimate paragraph of his review Thrane writes once Skødstrup and once Skydstrup. He specifies the provenance of Au 4085, which does not appear in SAM 5 at all, writes "pl. 1" where he must mean "pl. 71", attributes Au 3747 to the provenances Hvidbjerg and Toftehøj both, and says Au 4368 comes from Brøndhøj when he means Au 4968 did. And this is all in a single paragraph, whose purpose, of course, is to provide supplementary information to help the reader avoid the confusions arising from my errors! It really is difficult to produce in print a large and difficult text without a mistake. [Translated by David Liversage]

(25th August, 1986)

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Stylistic Analysis

A Critical Review of Concepts, Models, and Applications

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Studies of stylistic variation in prehistoric artifacts have played an important role in archaeological research since the beginning of the discipline. Assumptions about the causes of patterned stylistic variation have always been central to the development of cultural chronologies and to traditional concerns with culture-historical relationships and are equally important in "processual" or "post-processual" studies today. Beliefs about the processes by which stylistic elements have spread through time and space have differed. Despite a rich history of interpretive disagreements the subject has remained poorly understood.

Recent years have witnessed an increase in systematic efforts to identify the forces that create different patterns of stylistic trait distributions. There has been an expansion of archaeological interest in the social conditions that promote and inhibit the transmission of stylistic traits. These studies have produced some interesting results which has renewed the

field of stylistic studies and helped to define some directions for future studies.

Systematic research on social causes of stylistic variation is still small and from a theoretical perspective, somewhat disjointed. Thus a general theory cannot be presented. Below the main approaches to stylistic studies are surveyed and comments are made on the main problems in analyzing stylistic variation.

Two basic ideas have underlain most stylistic analyses in archaeology. The first is that style is a passive reflection of social demography and social interaction (Binford 1963, Deetz 1965, Hill 1970, Longacre 1970, S. Plog 1980, Whallon 1970):

- normative theory
- social interaction-learning theory
- motor habit approach

In contrast the second basic idea is that style is an active form of non-verbal communication which plays an important role in social strategies (Conkey 1980a & b, 1984, Hodder 1979, 1982a & b, Wiessner 1983, 1984):

- information exchange approach
- structural-symbolic approach
- behavioral approach

Up till the 1960s archaeological studies are based on normative theory. According to normative theory culture is shared and homogenous. Broad cultural areas are thought to be characterized by a single norm or idea concerning stylistic behavior. Learning is the recognized basis of transmission between social units not linked by regular breeding behavior. The aim of stylistic studies within this approach was to develop chronologies or mapping spatial variation.

A large amount of research has concentrated on the discovery and description of stylistic change through time in order to date sites. Using sets of artifacts from stratigraphic sequences or from dated deposits for temporal control, it has been established in many areas how stylistic attributes changed through time. The success of such studies led to wide spread use of stylistic attributes, such as types of ceramic designs or characteristics of projectile points as index fossils for the dating of sites.

Spatial analysis was influenced by the concept of diffusion which can be traced to anthropologists like Kroeber, Boas and others who worked in the period 1900–1945. Today the study of diffusion is unpopular among archaeologists, partly because new paradigms have been developed, but also because of misapplication of the concept of diffusion. Although no archaeologist denied the significance of the cultural milieu as a factor in the transmission and adoption of traits, it seemed impossible to account for it in real archaeological situations. Instead, archaeologists implicitly adopted the position that in the absence of countervailing evidence, diffusion rates could be assumed to be context-free. It came to be assumed that diffusion rates were directly proportional to the frequency with which people learned about an innovation, at least within a single society. Since the archaeological record rarely provided hard evidence of social or ideological constraints on diffusion, the working assumption meant that a large corpus of archaeological data could be employed to directly measure inter-

community contact. By means of this conceptual leap, culture contact stood in place of an explanation for interassemblage similarities in the presumably context-free realm of style. Thus, the concept of diffusion has often been employed by archaeologists as a surrogate for explanation. Cultural similarities are assumed to be satisfactorily explained if they can be said to be products of diffusion. This is of course a misapplication of the concept of diffusion. Diffusion is only a description of results, not an explanation of the processes behind it (Davis 1982).

In studies of chronology and cultural-historical relationships style is seen as broadly distributed aesthetic similarities typical of a time period in a given area or of an artist. – This view on style is very similar to usual modern employment of the concept of style. – The locus of variation is cultures. Only rarely have stylistic innovations been attributed to individual artists, like the designs at the Oseberg Viking ship (A. W. Brøgger, H. J. Falk, Haakon Shetelig 1920). Stylistic variation has also been studied as art. These analyses are influenced by our modern concept of art as a sphere independent and separate of other aspects of society. Thus the primary concern of older normative studies was simply recording the stylistic variation in time and space assuming the variation was context-free.

In the 1960s archaeologists became more concerned with explaining culture change. Many archaeologists argued that culture change must be understood in terms of a society's adaptation to its physical and social environment. Yet, the emphasis on the natural environment exceeded that of the social environment in many studies. However, the concern with explaining culture change did increase the interest in stylistic studies in order to infer characteristics of prehistoric organization.

This interest was stimulated by Binford's criticism of historical and normative approaches to explanation of cultural variation (Binford 1963). In this paper Binford defines style as the non-technological, non-functional part of material culture.

In a series of stylistic studies Deetz (1965), Hill (1967, 1970), Longacre (1964, 1970) and Whallon (1970) analyzed prehistoric residence patterns in North America by measuring the variation of ceramic design elements. Their approach to stylistic analysis has been called social interaction theory or social interaction-learning theory.

Social interaction among individuals was emphasized as the primary determinant of the stylistic variation. Thus, the locus of variation is the individual. According to social interaction theory individuals will paint designs like other individuals to the degree that the individuals interact, i.e. the degree of stylistic similarity is directly proportional to the amount of interaction. As individuals have varying spheres of interaction with other individuals that are determined by organizational units such as residence groups, lineages, clans, villages etc., it can be expected that varying degrees of stylistic similarity can be found at different spatial scales reflecting these units.

Social interaction theory is very similar to normativ theory. Both theories emphasize learning and interaction between individuals in the transmission of ideas through space. Both theories stress the concept of norms. The difference between

the two perspectives concern arguments for broad norms, those of a single social group as assumed by normative theory, versus more narrow norms, those of individuals according to social interaction theory.

The second basic assumption behind the studies of pre-historic residence patterns was first made explicit by Deetz (1965) in his study of Arikara ceramics. This hypothesis predicted that mutual associations among stylistic attributes would tend to be particularly developed on items produced by women in a community with a high rate of matrilineal residence. This pattern of stylistic behavior was theoretically attributed to the channelling of interaction among female artisans within the lines of matrilineal residence groups (Whallon 1970).

Utilising practically the same assumptions Hill (1970) and Longacre (1964, 1970) measured similarity between design elements in pueblo rooms and felt that there was evidence of spatially localized clusters of rooms. They argued that these spatial clusters represented matrilineal residence groups. – Following the same approach Whallon suggested that the degree of stylistic homogeneity would be a function of the amount of movement of women between villages, i.e. a function of the rules of postmarital residence.

Significance of weakly formalized communication networks for stylistic distributions in pottery is analysed in a series of ethno-archaeological studies by David and Hennig 1972, Friedrich 1970, Hardin 1977, 1979, Longacre 1974 and Stanislawski and Stanislawski 1978.

The motor habit approach to stylistic studies was suggested by Hill (1977) and following this idea Hill and Gunn edited a book on "The individual in Prehistory" in 1977. Hill suggested that differences between individuals in motor habits are the primary source of variation in a number of attributes. This variation is subconscious and therefore independent of social interaction or learning the production of a craft. Thus motor habit variation can be used to isolate the products of individual artisans. Attributes suited for this kind of analysis would be line and space width, angles, and the use of space in general.

Criticism of the social interaction theory

Although the social interaction approach has some explanatory power there are many situations which cannot be accounted for. Particular noteworthy are ethno-archaeological findings that there can be intensive interaction over a boundary, yet styles remain discretely distributed and in no way reflect this interaction (Hodder 1982 a og b, Wiessner 1983, Wobst 1977). Conversely, there may be marked social boundaries which do not inhibit the flow of style. The distributional patterns predicted by social interaction theory are gradually increasing or decreasing stylistic similarities, whereas homogenous style zones with marked boundaries cannot be explained.

The disagreement also concern the social conditions that promote or inhibit transmission of stylistic variation. Hodder (1979) argues, that the simple relationship between learning and stylistic variation which is assumed by the social inter-

action theory, will only be found in ideal situations free of social or economic constraints or stress. Wiessner (1984) has tested the social interaction theory against the distribution of stylistic traits at beaded headbands used among the San bushmen in Kalahari. Her analysis indicates that stylistic similarity does not drop off with distance, rather stylistic differences are related to the nature of interaction among artisans.

The idea of style as passive reflection of interaction and learning has been criticised by Wobst (1977), because style is solily related to context of production, that is to processes which precedes the use of artifacts. Stylistic variation has no relation to the use context. Following the social interaction approach style becomes a strangely selfcontained variable within the cultural system. Also style has no function or adaptive value.

Style as an active component in social strategies

Opposed to studies utilizing the normative approach, social interaction or motor habit approach, a number of stylistic analyses have stressed the active role of material culture in social strategies. Stylistic behavior is emphasized as a cultural phenomenon that should be investigated in terms of the function such behavior performs in relation to other cultural variables. At the most general level it is argued that the decoration of domestic products, dress and surroundings is a form of social display or advertising behavior, encoding information not only on the identity of the maker or user, but also potentially about hers or his social group membership, status, wealth, religious beliefs, and political ideology.

Information exchange theory

This approach was first developed by Wobst (1977). Using information theory he defined style as formal variation in material culture which transmits information. From a perspective of cost effectiveness for style in transmitting messages, Wobst made a number of predictions on the possible content of the stylistic message and the ideal reciever. He argued that style is only efficient for transmitting simple, invariate and recurrent messages like group affiliation. Examples of this kind of stylistic variation would be flags, uniforms etc. More complex information would be too costly to transmit using material culture and too difficult to decode.

The ideal recievers of stylistic messages are intermediate socially distant people. People at close social distance would know the message already or it would be easier to transmit it verbally. On the other hand the receiver should not be too distant since decoding or encountering of the message could not be assured.

Two important predictions can be made from the information exchange approach. First the most visible artifacts are most appropriate for the transmission of stylistic messages. That is features that are encountered by most people like body decoration, dress, artifacts used in a public context like ceremonial objects or artifacts used as exchange items.

The second prediction circumscribes the potential receiver

as intermediate in social distance to the emitter of the message. From this perspective Wobst argues that stylistic behavior will increase with the size of the social network – simply because the group of potential receivers increase. Small social networks in band societies on the other hand will only produce a weakly developed stylistic behavior. Wobst argues that this kind of stylistic variation has a highly adaptive value as it helps integrating members of society by expressing group membership and boundaries: Also stylistic messages facilitate social interaction across boundaries because the signal of social identity makes certain norms of interaction predictable.

It deserves notice that Wobst is only dealing with that part of material culture which transmits information. In his opinion that is the highly visible part of material culture. Other artifacts will show the same kind of variation as described by social interaction theory.

In analyzing prehistoric ceramics in the American Southwest Plog (1980:136) suggest that stylistic variation found here is best explained by information exchange theory. The study includes a thorough discussion on problems related to stylistic analysis.

In a recent study of the TRB West Group Voss (1982:45) suggests a fusion of the social interaction and information exchange approaches centered on the concept of style as identity expression. The formation of personal identity results from a dynamic process linking the individual with the larger social environment. Stylistic behavior is generated on the basis of social expectations and is directed towards others in the social sphere. Style permits social evaluation of the individual and at the same time transmits information concerning group affiliation and unique statuses. The concept of style as identity expression suggested by Voss is very similar to studies by Wiessner (see below). However, Voss relates stylistic behavior to social psychology without stressing human cognitive processes.

Predictions of information content and potential receivers are very similar to those stated by Wobst and comments on information exchange theory applies to Voss as well. The limited scope of information content of style, as implied by Voss, results in a view on stylistic variation as passive reflections of communication and social interaction in a presumably context-free space. Thus contextual use of pottery and changing importance of pottery at funeral rites is not considered in the interpretations of stylistic variation.

Criticism of information exchange approach

Wobst succeeded in pointing out when and how a specific type of information will be communicated through stylistic signaling. However, the information exchange approach has been criticized for the following two reasons.

First this approach fails to account for the underlying behavior which is expressed through stylistic variation. Style may well express and justify ethnic differentiation, but the manner in which they do this cannot be explained. Why certain types of artifacts are chosen to reflect the differentiation instead of others are not explained. The conditions which

brought out the social differentiation in the first place are not explained either.

The second problem using the information exchange approach concerns Wobst's predictions of narrow information content of stylistic messages and of the socially distant receivers. Hodder's ethnographic studies indicate that visibility is not a primary determinant of an item's value as an ethnic marker. His data shows that features with low visibility, such as hearth location inside houses, may be patterned similarly to objects outside in the external world (Hodder 1982). Here stylistic variation works two ways, both marking ethnic differences and binding people at close social distance together. Thus style plays an important role in communicating more complex and subtle messages both at a distance and in close proximity. – Our everyday experience confirms this. One need only look at dress style among teenagers in our society to realize that style plays an important role in nonverbal communication for those in close proximity and that style is often appropriate for complex and variable messages (Wiessner 1984).

The structural-symbolic and the behavioral approach

The more comprehensive view on style taken by Meg Conkey 1980a & b, Ian Hodder 1979, 1982a & b and Polly Wiessner 1983, 1984 raises questions about relevant social conditions and spatial structures that were not considered explicitly by Wobst and Voss. Studies on the social conditions underlying stylistic variation has followed two lines of investigation, a structural-symbolic approach taken by Hodder and Conkey, and a behavioral approach taken by Wiessner.

The difference between the two approaches concerns different intellectual levels behind the function of material culture in social strategies. Conkey and Hodder are concerned with the conceptual framework of society. Whereas Wiessner studies the mechanisms that guide the stylistic behavior of the individual within a given cultural frame of reference.

The structural-symbolic approach

Conkey and Hodder define style as the particular way in which general principles of meaning are assembled and re-organized in a local context as part of the social strategies of individuals and groups.

Style may be viewed as a conceptual process, a cultural code that produces variability in the formal attributes of material culture and that relates to the social context of manufacture and use. The existence of stylistic variability implies not only participation in a similar cultural encoding and decoding strategy but the transformation of that code into material culture. This transformation, itself a form of communication, is based on a mutually intelligible communication system and produces material culture exhibiting "family resemblances" or some degree of standardization.

Participation in a common cultural encoding and decoding strategy and the transformation of this code via stylistic treatment of artifacts may be viewed as a cultural integrating me-

chanism. This is so because participation in a style enhances predictability of a message by restraining it. Arbitrariness and ambiguity in a style is restrained in favor of redundancy.

Just as participation in a style may serve as an integrating device it may also serve as an isolating mechanism such that the message may not readily be translated out of the cultural context. This is the reason behind archaeological interpretations of style as an indicator of social boundaries. However, style is not so much to be viewed as an indicator of social boundaries, but as a component in the process of boundary maintenance. Maintenance of a style is related to selective pressures favouring both internal integration within and external differentiation among identity conscious groups.

Meg Conkey (1980a & b) has related the appearance of stylistic variation to human cognitive evolution. The ability to communicate anything that can be conceptualized signals a threshold in the human means for storing and transmitting information. The transformation of concepts into not only vocabularies, but also material culture such as engraved bone and antlers gives better possibilities of communication.

This communicative advantage could have enhanced the learning of new adaptive tasks and probably contributed to the replacement of Neanderthals by fully sapiensized populations. Since then human evolution has been characterized not by species diversity, but by cultural differentiation. A shift in the organization of adaptive behavior led towards behavior dependent on symbolization. Symbolic behavior is a means of managing both intragroup and intergroup dynamics.

The studies by Ian Hodder concern specifically the role of style in maintenance of social group boundaries. In 1979 he proposed that material culture items were most likely to show a sharp fall off at ethnic boundaries when intergroup competition made it advantageous to reinforce ethnic identities. Material culture can affect the way people behave and can be used to change people's ideas. It is part of the active negotiation of social change by individuals. The outcome of this negotiation depends on the relationship between individuals, culture, and history. "There is no causal relationship, because the relationship depends on how individuals use material culture in social strategies, and the way they use it depends on the framework of meaning in which material culture is involved in particular historical contexts" (Hodder 1984:48).

The behavioral approach

Like Hodder and Conkey, Polly Wiessner (1983, 1984) emphasizes the active role of material culture in social relations and the importance of cultural and historical contexts in stylistic interpretations.

Social and symbolic structures define persons and styles in artifacts as comparable, and because stylistic decisions are made relative to these, style can only be understood within its appropriate cultural and historical context. On the other hand, if stylistic behavior is based on a fundamental human cognitive process as proposed by Wiessner, then an understanding of this process is essential for developing a theory of style.

Wiessner defines style as variation in material culture which is involved in negotiation of personal or social identity relationships. The behavior underlying style is an expression of identity which is aimed at projecting personal and social aspects of the bearer to others in order to create a positive image. Both social and personal aspects are important in the formation of self-image. Social identity will be that part of an individual's self-concept which derives from knowledge of membership of social groups. Personal identity concerns the more personal aspects of self-concepts and usually denote specific attributes such as bodily attributes, psychological characteristics, feelings of competence, ways of relating to others, intellectual concerns, personal tastes etc. (Wiessner 1984:5).

The motivation of individuals to differentiate themselves from others is a desire to project a representation of this image to others, preferably others who are socially more successful. Individuals who can present a positive self-image seem to be more successful in interaction with others (Crook 1981:105). – Style is one of the many channels through which such a representation can be presented negotiating personal and social identity relations, either consciously or unconsciously.

Under most conditions daily comparison will occur at the level of the individual, not that of a group acting as a unit. The choice of persons or groups for comparison are guided by cultural and symbolic structures in society which defines persons and groups as being comparable along certain dimensions. A skilled hunter would compare himself with his spears and not with an old man or a young boy who had just started to hunt.

Under certain conditions style will take on collective associations and the spatial distribution of specific designs will yield information on social boundaries. This requires a reduction in the number of associations evoked by certain stylistic features. A number of conditions may produce a reduction in the range of association related to certain stylistic features:

1. The frequency with which an artifact is subject to comparison has to be sufficiently intensive.
2. Stress and competition between persons or groups will enhance comparison along certain dimensions.
3. A specific functional or symbolic role of an artifact will limit possible referents.
4. A stable history between people over time allows for a specific style to become associated with certain referents.

The fact that people will negotiate both personal and social aspects of identity implies that style potentially holds information on harmony and tensions in society caused by the balance or imbalance between these two aspects of identity.

The choice of subjects for social and stylistic comparison are guided by existing cultural structures. Thus a comparison of subjects over space and between social strata might provide information on cultural structures. Lack of stylistic comparability can result from a number of reasons:

1. Isolation or lack of knowledge of another social group and its material culture.
2. Desire to avoid comparison and statement of identity relative to certain persons or groups.
3. A conscious attempt by persons or groups to differentiate themselves.

A variety of relationships can be negotiated through social comparison and by the use of different stylistic strategies. Usually in hunter-gatherer studies style has been interpreted as a means of creating social solidarity or as a way of maintaining the social boundaries necessary to redistribute people over social and natural resources. However, many different kinds of relationships may exist along these two opposing dimensions, affiliation and differentiation (Wiessner 1984).

Conclusion

It is evident from the survey of stylistic studies that there is no coherent theory on style. Perhaps Whallon is very close to the truth in saying "The meaning of style has so many ramifications, that an attempt at a comprehensive definition must either arrive at a vague theoretical statement or become involved in an extensive review of specific usages" (Whallon 1970:224).

In working with material culture, it is however important that archaeologists develop interpretative frameworks about the material implications of different kinds of social behavior and information content.

Obviously the two basic ideas underlying stylistic analyses describe different kinds of variation in material culture resulting from different social behavior. Wiessner (1984) cautions that the concept style does not include all formal variation. Studies by for instance Hodder and Conkey have neglected that not all material culture plays an active role in social strategies. Thus, the concept style has been applied to data that were not comprehensive from this approach. Normative variation, the replication of ways of doing things, is generated by different social actions.

A recent discussion between Sackett (1985) and Wiessner (1985) clarifies the distinction between normative or isochrestic variation (Sackett 1982, 1985) and stylistic variation. Normative or isochrestic variation is described by Sackett (1985:158) as "choosing specific lines of produce from the nearly infinite arc of possibility and sticking to them". This variation permeates all aspects of social and cultural life. Functional traits are also subject to isochrestic variation. While its causes may be obscure, its need is obvious. Order, skill, facility in human relations, and technology require the definitiveness and effectiveness that come from conforming to and perpetuating isochrestic options dictated by craft traditions of a given social group. Normative or isochrestic variation is generally acquired unconsciously, taught by insinuation and employed automatically. Isochrestic or normative behavior has a symbolic element of its own right as conforming to standard values provides a mutual identity and security.

The intriguing question is, how and why procedures become adapted in populations that often cover vast areas (Wiessner 1985). Only little is known about the identification of this kind of variation or the content of social information. Wiessner (1985:162) suggests that isochrestic variation will vary around one or a few standard mean types, whereas several competing alternatives might be expected in stylistic variation. Also, isochrestic variation should remain stable through time, while

stylistic variation is currently updated and dynamic. Social contact would only have a limited effect on isochrestic variation, once it is established, whereas style potentially would be influenced due to regular stylistic and social comparison. Items used in stylistic variation are chosen within the range of isochrestic variation of a particular social group. Style can lapse into isochrestic variation if the symbolic role of an artifact disappear.

"Style is not acquired through routine duplication of certain standard types, but through dynamic comparison of artifacts and corresponding social attributes of their makers. Stylistic outcomes project positive images of identity to others in order to obtain social recognition" (Wiessner 1985:161). Recent studies have concentrated on the aspects of material culture that play an active role in social strategies. Certain predictions can be made on the kind of social information contained: Existence of social groups and boundaries, nature of personal and social relationships and balance between personal and social identity through time.

Thus, two kinds of stylistic variation might be expected in the archaeological data. Both aspects of stylistic variation might play a part in the same social strategies or one might express group identity while the other aspect might be involved in simultaneous attempt to lessen the level of conflict (Hodder 1979).

Despite increasingly complex analysis of the social conditions producing stylistic patterning these processes are still poorly understood. Conformity to social norms occur as a result of selective pressures which makes integration and boundary maintenance advantageous. Usually unspecified tensions and competition, socially or economically, are referred to as selective pressures.

Based upon information exchange theory and cost effectiveness Wobst (1977) suggested some general links between stylistic strategies and social behavior at group level (iconographic variation Sackett 1985). This kind of stylistic variation should appear as all-or-nothing uniform zones concerning specific, mainly non-functional, aspects of material culture, especially items with a relatively long period of manufacturing and use and high visibility. These predictions have not stood up to ethnographic testing (Hodder 1982a, Wiessner 1983, 1984).

No clear predictions can be made for either style or isochrestic/normative variation with regard to artifacts or traits in which the two kinds of variation would be expected to reside. Analysis must proceed by carefully scrutinizing frequency of appearance and contextual use of the artifacts. Spatial variation of different artifacts must be contrasted. These analyses should provide basic information for separating normative/isochrestic variation and stylistic variation. Which artifacts are involved in stylistic variation, in what context do they occur and in what combinations with other artifacts? Is it possible to distinguish several kinds of stylistic variation in contrast to normative/isochrestic variation? Questions like these should provide insights to the use of material culture in different social strategies at a given time.

Many stylistic analyses are synchronic studies or compari-

sons of several synchronic studies. Studies of temporal variation might provide further informations on stylistic strategies in society. Various artifact groups showing different degrees of temporal variation might indicate normative/isochrestic variation versus stylistic variation or individual versus social stylistic variation.

Different areas might show varying degrees of temporal change indicating needs of conformity to social norms. An extreme example is the Egyptian art which remained virtually unchanged for centuries, probably because this part of material culture was linked to Pharaoh's status as god and concepts of an eternal unchanging order of life.

On the other hand, the Single Grave Culture in Jutland provides an example of fast temporal changes of the male status symbol, the battle axe, in relation to Eastern Denmark and Continental European Battle Axe Culture. This might be due to tense and competitive social conditions in Jutland. Also, the role of battle axes as male status symbol might be reduced in favor of metal objects during the late Battle Axe Culture in continental Europe (Glob 1944, Harrison 1980:68).

The analytical approaches suggested above aim towards critical questioning of the archaeological data concerning the content of social information and the behavioral basis of material culture. Analysis within this framework might be fairly small-scale regional studies rooted in specific social situations (D. Miller and C. Tilley 1984:151). However, such studies might provide a more adequate understanding of longterm changes by improving our knowledge on the relationship between social behavior and material culture.

REFERENCES

- BINFORD, L. 1963: Archaeology as Anthropology. *American Antiquity* 28, 217–225.
- BINFORD, L. and BINFORD, S. R. (eds.) 1970: *New perspectives in Archaeology*. Chicago.
- BRØGGER, A. W., FALK, H. J. and SHETELIG, H. 1920: *Oseberg-fundet*, Vol. III (by H. SHETELIG). Kristiania.
- CONKEY, M. W. 1980a: Style and information in cultural evolution: Toward a predictive model for the palaeolithic. In REDMAN, C. L. et al. (eds.), *Social archaeology: Beyond subsistence and dating*. Studies in Archaeology. Academic Press, N.Y., 61–65.
- 1980b: Context, structure and efficacy in Palaeolithic art and design. In FOSTER, M. and BRENDES, S. (eds.), *Symbol as sense*, 225–248.
- CROOK, J. H. 1981: The evolutionary ethology of social processes in Man. In KELLERMAN, H. (ed.), *Group cohesion* 86–108.
- DAVID and HENNIG 1972: *The ethnography of pottery: a Fulani case seen in archaeological perspective*. Addison-Wesley Modular Publications 21, 1–29.
- DAVIES, D. D. 1982: Investigating the diffusion of stylistic innovation. In SCHIFFER, M. B. (ed.), *Advances in Archaeological Method and Theory* vol. XX, 53–89. New York.
- DEETZ, J. 1965: *The dynamics of stylistic change in Arikara ceramics*. Illinois Studies in Anthropology no 4.
- FRIEDRICH, M. H. 1970: Design structure and social integration: Archaeological implications of an ethnographic analysis. *American Antiquity* 35, 332–343.
- GLOB, P. V. 1945: Studier over den jyske Enkeltgravskultur. *Aarbøger for nordisk Oldkyndighed og Historie* 1944.
- HARDIN, M. A. 1977: Individual style in San Jose pottery Painting: the role of deliberated choice. In HILL, J. N. and GUNN, J. (eds.), *The individual in Prehistory*, 109–136.
- 1979: The cognitive basis of productivity in decorative art style: implications of an ethnographic study for archaeologist, taxonomies. In C. KRAMER (ed.), *Ethno-archaeology*, 75–101.
- HARRISON, R. J. 1980: *The Beaker Folk*. London.
- HILL, J. N. 1967: Structure, function and shape at Broken K Pueblo. *Fieldiana: Anthropology* 57, 158–167.
- 1970: Broken K Pueblo: patterns of form and function. In BINFORD, L. and BINFORD, S. R. (eds.): *New Perspectives in Archaeology*, 103–143. Chicago.
- HILL, J. N. and GUNN, J. 1977: *The individual in Prehistory*.
- HODDER, I. 1979: The economic and social stress and material culture patterning. *American Antiquity* 44, No 3, 446–454.
- 1982a: *Symbols in Action*. Cambridge University Press.
- 1982b: *The Present Past*. Batsford, London.
- 1984: Beyond processual archaeology. *Perspective on Archaeological Theory and Method*. University of Lund, Report series No 20, 45–54.
- LONGACRE, W. A. 1964: Sociological implications of the ceramic analysis. *Fieldiana: Anthropology* 55, 155–170.
- 1970: *Archaeology as Anthropology a case study*. University of Arizona Anthropological Papers 17.
- 1974: Kalinga pottery-making: the evolution of a research design. In LEAF, M. J. (ed.), *Frontiers of Anthropology*, 51–67.
- PLOG, S. 1980: *Stylistic Variation in Prehistoric Ceramics*. New studies in archaeology. Cambridge University Press.
- SACKETT, J. R. 1982: Approaches to style in lithic archaeology. *Journal of Anthropological Archaeology* 1, 59–112.
- 1985: Style and Ethnicity in the Kalahari: A Reply to Wiessner. *American Antiquity* vol 50, No 1, 154–160.
- STANISLAWSKI, M. B. and STANISLAWSKI, B. B. 1978: Hopi and Hopi – Tewa ceramic tradition network. In HODDER, I. (ed.), *The spatial organisation of culture*, 61–76. London.
- VOSS, J. A. 1982: A study of Western TRB Social Organisation. *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek*, Jahrgang 32.
- WHALLON, R. 1970: Investigations of prehistoric social organisation in New York State. In BINFORD, L. and BINFORD, S. R. (eds.): *New Perspectives in Archaeology*, 223–244. Chicago.
- WIESSNER, P. 1983: Style and social information in Kalahari San projectile points. *American Antiquity* 48, 253–276.
- 1984: Reconsidering behavioral basis for style: A case study among the Kalahari San. *Journal of Anthropological Archaeology*.
- 1985: Style or Isochrestic variation? A Reply to Sackett. *American Antiquity* vol 50, No 1, 160–166.
- WOBST, M. 1977: Stylistic behavior and information exchange. In CLELAND, C. (ed.), *Papers for the director. Research essays in honor of James Griffin*. University of Michigan Museum of Anthropology. Anthropological papers No 61, 317–342.