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Source: *American Antiquity*, Vol. 50, No. 1 (Jan., 1985), pp. 160-166

Published by: [Society for American Archaeology](#)

Stable URL: <http://www.jstor.org/stable/280643>

Accessed: 16/10/2013 07:18

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STYLE OR ISOCHRESTIC VARIATION? A REPLY TO SACKETT

Polly Wiessner

Isochrestic behavior as Sackett describes it is recognized to be one of the important sources of variation in material culture. The behavioral bases for isochrestic variation and for what I describe as stylistic variation are contrasted and some of their implications for variation in material culture are discussed. Kalahari San projectile points are then reexamined within the framework of isochrestic and stylistic behavior using both historical and contextual data. It is concluded that variation in San projectile points better fits the expectations of stylistic than isochrestic behavior, at least with our current understanding of isochrestic behavior.

Jim Sackett's critique of my investigation of stylistic variation in Kalahari San projectile points raises one of the key issues in studies of formal variation in material culture, that is, what kind of variation in material culture is the result of its use as an active tool in creating social relations, and what kind of variation is the result of isochrestic behavior described by Sackett as, "choosing specific lines of procedure from the nearly infinite arc of possibility and sticking to them." Although Sackett uses the case of Kalahari San projectile points for his argument, his criticism, I believe, is directed at the current trend to emphasize the active symbolic role of material culture in social relations and social strategies (Conkey 1978, 1980; Hodder 1982b, 1982c; Plog 1980; Wobst 1977; and others) and to neglect the fact that not all material culture functions in this way and can be understood in this light. Sackett's point is timely and I doubt that many students of material culture would deny that life would be unpredictable and chaotic if people did not have some procedures they follow by habit.

The reason for the neglect of isochrestic behavior has probably not been a denial of its existence but because those working with isochrestic variation have not developed a corresponding theory, discussed how it might be identifiable in the archaeological record, or, above all, discussed what kind of social information can be obtained from isochrestic variation under different conditions. In contrast, various investigators (using symbolic theory, information theory, etc.), in working with items of material culture that play an active role in social strategies, have developed predictive or interpretative frameworks that have stimulating implications for archaeological research. Thus, it is not surprising that attention has centered on analysis of artifacts that appear to play an active role in social relations rather than on those with isochrestic variation. I do agree with Sackett, however, that isochrestic variation is a source of variation to be reckoned with in its own right, and that there is need for an archaeological theory of isochrestic variation. In the next few pages, I discuss the behavioral basis Sackett (1982, 1984) describes for isochrestic variation, compare this with the behavioral basis I have described for style (Wiessner 1983, 1984), discuss briefly the general implications of each for variation in material culture, and reexamine variation in Kalahari San projectile points within this light.

ISOCHRESTIC AND STYLISTIC BEHAVIOR

The behavioral basis for isochrestic variation is perhaps best described in Sackett's comment as, "choosing specific lines of procedure from the nearly infinite arc of possibility and sticking to them." He states that its roots are obscure, perhaps, but there is some evidence of conformity in the ethological literature in that animals who deviate from standard signaling procedures and those who are physically deformed are ostracized (Kummer 1978; Neumann 1977). Standardization and conformity in material culture, however, do not appear to have developed significantly prior to the Mousterian (Conkey 1978). The function of isochrestic behavior as described by Sackett is to make life predictable and orderly. It also limits the vast information load that would result if nothing were routine and every action involved conscious decisions. Isochrestic behavior is acquired by

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rote learning and imitation and is employed automatically. Between the lines, Sackett suggests, and reasonably so, people have an image (or mental template) of how something should be done and stick to it with varying degrees of accuracy. In making life predictable, isochrestic behavior would be expected to play a role in binding together people who do things in a similar way. In a sense, isochrestic behavior can be seen as forming the foundation of a society by providing order, skill, facility, predictability, and effectiveness in human relations and technology.

The behavior Sackett describes as underlying isochrestic variation (and I agree with his description) is markedly different from the behavior that I have argued underlies style. (Wiessner 1984). I use the word style here to avoid introducing a new term. Sackett's model of iconological style is not appropriate because it covers only a special case of stylistic behavior, one in which stylistic statements conform to certain spoken ones, containing clear, purposeful, conscious messages aimed at a specific target population. Style as an active tool used in social strategies must be understood within the broader context of personal and social identity achieved via comparison precisely because style is most often used to say what cannot be expressed verbally. Style, as I see it, has a behavioral basis in the fundamental human cognitive process of personal and social identification through stylistic and social comparison. In this process, people compare their ways of making and decorating artifacts with those of others and then imitate, differentiate, ignore, or in some way comment on how aspects of the maker or bearer relate to their own social and personal identities. Style is thus not acquired and developed 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. While isochrestic behavior functions to make life predictable and orderly, stylistic behavior presents information about similarities and differences that can help reproduce, alter, disrupt, or create social relationships. I have suggested elsewhere (Wiessner 1983, 1984) that the roots of stylistic behavior may lie in the universal desire to create a positive self-image and to project this to certain others to obtain self-esteem and social recognition, a process that Crook (1981) has suggested is related to the evolution of reciprocal altruism. People who can project a positive image to others might make them engage in reciprocal relations more willingly.

Social and stylistic comparison and corresponding choices can be made at very different levels of consciousness and intent, ranging from purposeful signaling to feelings transmitted by insinuation and can involve referents of varying degrees of specificity, from conscious messages of specific group affiliation to those that are employed subconsciously, supporting but not directly symbolizing social relations. Thus, isochrestic and stylistic behavior cannot necessarily be separated by purposefulness of their messages. Because the degree of purposefulness of a message and specificity of a referent can have significant implications for formal variation in artifacts, it is important that these be recognized in archaeological analysis and interpretation (Wiessner 1983).

I believe that in many cases isochrestic behavior can be separated from stylistic behavior in an ethnographic context. When asked about items with apparent isochrestic variation, San were annoyed at my questions concerning why they made things in a certain way, stating simply that they made them that way "for no reason" or because that is the way that their fathers made them. It was generally impossible to continue the conversation. When asked about objects containing style, in contrast, they lit up, spent a long time talking about decoration or design and then went on to compare their artifacts with those of others and themselves with others (Wiessner 1984). I regret now that I chose only items with apparent stylistic input for systematic study and kept only occasional records on objects the San were not interested in discussing.

If the behavior underlying style and isochrestic variation differs so greatly, then what are the implications of these differences? I outline some of these implications here, although first it is necessary to clear up one point that Sackett raises in his critique. In my article, I include a number of predictions derived from information theory that I thought could be applicable to "emblemic style," although the general framework of the paper was not information theory, but style as a means of personal and social identification achieved through stylistic and social comparison. These included: 1) that stylistic elements should have an all or nothing conformity in their expression, 2)

that stylistic elements ought to be nothing but stylistic, and 3) that artifacts favored for stylistic investment should take relatively long to make, should have a long useful lifetime, and high visibility. After having done further work with Kalahari San artifacts, I realized that these expectations are inconsistent with the theoretical approach that I used. Predictions derived from information theory (Wobst 1977) have provided many interesting ideas, have incited much research, but have not stood up well to ethnographic testing (Hodder 1982a). I have suggested elsewhere that this is because in identity displays efficiency of messaging is not a major concern. To the contrary, identity displays are often extravagant, the resources and effort expended being an index of ability and worth. Thus, stylistic messages need not be clear or uniform, in fact a certain amount of ambiguity may help achieve the desired effect, nor is there any reason to predict that stylistic elements must be purely stylistic, as differentiation through doing things in a different way and thereby reducing comparability may be very effective in social strategies. I fully agree with Sackett that purely functional variables do not exist. Nonetheless, distinguishing whether differences are largely due to the task for which an artifact is used, whether they stem from functionally equivalent choices or from purely stylistic decoration, can have important implications for uncovering patterns of comparability and for interpreting underlying social relationships (Wiessner 1984). Consequently, although Sackett's observations that my data do not fit predictions from information theory are correct, this is only because predictions from information theory are incompatible with the overall approach to style used in the paper. They in no way refute the idea that style in San arrows is used as an active tool in social strategies, nor do they shed any light on the issue of whether variation in San projectile points can best be described as isochrestic or stylistic.

With regard to artifacts in which style would be expected to reside, I think that no clear predictions can be made for either style or isochrestic variation, since many artifacts can do an equally good job in stylistic messaging and it is not possible (at least with our current knowledge of human symbolism) to predict which items people will assign meaning to. I suspect that the correlation I found between manufacture time and stylistic effort may be due to the fact that extensive investment may, in some cases, be an index of industriousness and worth and because artifacts that take longer to make may be more likely to be aesthetically appealing, reinforcing projection of a positive image. Items with long useful lifetimes will of course better serve to project such an image through time, although there will be many exceptional cases.

Turning to the archaeological implications of style and isochrestic variation, if stylistic development and change are seen as the outcome of stylistic and social comparison and isochrestic development as the result of choosing specific lines of procedure and sticking to them, then their developments through time should differ. Style should be an updated, current, and dynamic commentary on social relations, and in many cases the process of differentiation and emulation will cause "fashion swings." Isochrestic choices, once established, should remain stable, providing a basis for predictability, except in times of technological change when one artifact form, which is perceived to be superior to the existing one, replaces it. (It might be noted that there is rarely any absolute scale of measurements for superiority and that both social and functional considerations will play a role in determining superiority.) Style can lapse into isochrestic variation if an artifact's symbolic role wanes and stylistic comparison no longer incites social comparison. Likewise, if social meaning becomes attached to different isochrestic forms, isochrestic variation can be activated into style.

Style and isochrestic variation will be influenced differently by social contact. Social contact should have the potential to affect style due to regular stylistic and social comparison. Exactly how it will affect style depends on history, cultural context, and the nature of relations. In contrast, social contact should have little effect on isochrestic variation once a standard procedure has been established, because it is based on object-object or object-ideal type comparison. It would be expected to have a certain resistance to change and only be altered when clearly superior forms are created or when other procedures are imposed by a dominant culture. Thus, I would argue that Sackett's description of isochrestic variation as choosing specific procedures and sticking to them is inconsistent with his subsequent statement that people visit others and are influenced by their design notions. If this were the case, isochrestic behavior would not make life predictable, facile, orderly,

and so on. Consequently, once isochrestic procedure has been established in a population, it should not necessarily continue to provide a measure of social interaction within the population.

Materials available also will affect isochrestic variation and style differently under certain conditions. While great efforts may be made to obtain certain materials when stylistic comparability is desired, people may be more likely to use locally available materials or easily available ones to carry out isochrestic procedures.

Stylistic alternatives used and patterns of stylistic variation over space would be expected to be numerous depending on the nature of relationships in which style participates, cultural context, history and conditions, such as density of artifacts (Wiessner 1984), competition (Hodder 1979), and so on. In contrast, in isochrestic variation, different competing forms would be unlikely and artisans would tend to choose but one, or at most but a very few of the isochrestic options that are potentially available to them (Sackett 1982:73). Presumably then artifacts resulting from isochrestic choices would vary around one standard mean type, with range of variation depending on functional requirements, materials, standards set in the society, etc. Despite these differences, stylistic variation over space operating in certain personal and social identity relationships, such as expression of strong group affiliation combined with moderate degrees of personal differentiation, may be very difficult to distinguish from patterns of variation generated by isochrestic behavior. Other relationships such as marked personal differentiation in combination with minimal expression of group affiliation may be very easy to distinguish.

Finally, the different behavior underlying stylistic variation and isochrestic variation will have strong implications for the kind of information each will contain. I have argued elsewhere (Wiessner 1984) that style can contain information on: 1) the existence of groups and boundaries, 2) rates of interaction, 3) the nature of personal and social relationships, 4) the balance between expression of personal and social identity through time. The information content of isochrestic variation is more obscure, at least on the basis of our current knowledge. Certainly during the period when isochrestic procedures are being established, they represent shared ideas of the population that adopts them. How and why a certain procedure becomes adopted in populations that often cover vast areas is an intriguing question. But, since isochrestic procedures should then remain relatively stable except in the face of internal or imposed technological change, they will not necessarily be altered by shifting patterns of social interaction, as I have argued above. I found that numerous differences that appear to be isochrestic existed at boundaries that are meaningless today. The fact that the San attached little significance to these differences did not help in discovering why they occurred where they did. For example, differences in quiver-carrying devices (bags as opposed to straps) divided the central !Kung dialect group between communities that have intensive interaction in the Nyae Nyae area. Carrying straps were used by northern central !Kung and by northern !Kung dialect speakers and carrying bags were used by some central !Kung, and all southern !Kung, Nharo, G/wi and !Xo. At Nxau Nxau and to the north, mortars have no decoration, while in other !Kung areas and among the northern Ghanzi Nharo, mortars are decorated with a carved belt. At some point in the middle of the Ghanzi farm block, an area inhabited largely by Nharo, pestle shape changes, with gradually tapering ends found in areas to the north and bulging ends in areas to the south. Other artifacts do not vary at all between language groups, such as men's loin cloths, except that some !Kung decorate them with beads today. I could only conclude that these differences were due to history of social relations, both internal and external, trade networks, availability of materials and other factors. White et al. (1977) have similar difficulties in explaining variation in Duna stone tools over space. I hope future research will increase our understanding of the social information contained in isochrestic variation in different contexts and under different conditions.

KALAHARI SAN PROJECTILE POINTS: ISOCHRESTIC VARIATION OR STYLE?

Now let us reexamine variation in Kalahari San projectile points within the framework of the differences outlined above between style and isochrestic variation. With regard to information contained in San arrows, it was clear ethnographically that the San manipulated style in arrows to

obtain certain desired effects, whether or not individuals could be said to be fully conscious of the intended effects. Consciousness of messages transmitted through style is difficult to determine ethnographically, because style is often used to make statements that cannot be made verbally. At the individual level, style was used with great amusement by some hunters who varied their styles so as to surprise exchange partners. The partners laughed at these stylistic inconsistencies and often took pride in being able to identify all the arrows in their quivers despite changes in a person's style. Other hunters took pride in consistency. At the level of the language group, San had very strong reactions to foreign styles and went on to discuss known or imagined qualities of their makers. In the case of both individuals and language groups, differences in arrows led to comparisons of styles and subsequent discussions about their makers. In contrast, the above mentioned variation in quiver carrying devices and mortar shape brought little more than shrugs of indifference, with accompanying remarks that somebody "just made them differently." For differences in quiver-carrying devices, !kung expressed some interest in their functional properties, but not in their makers. !kung responses gave few clues as to what meaning they attached to this variation, and because their remarks did not lapse into social comparison, significance was difficult to infer.

The history of development of metal tipped arrows, or the little that is known about it, also suggests that they play an active role in social relations and have been subject to regular stylistic and social comparison through time. Interestingly, both my investigations and the more thorough ethnohistorical work of J. Deacon (1982) have found that in the past, there were no interlinguistic group differences in bone (unbarbed) projectile points from Namibia to the southern Cape. Linguistic group differences appear to have originated with metal points and can be traced back at least 60 years for some groups (Deacon 1982). Older !Kung men remember the development of metal points (which would have occurred later in remote areas like Dobe and /xai/xai) claiming that in the beginning, hunters experimented with points of many sizes and shapes. There is evidence for this experimentation in Deacon's illustrations of the radical variation in metal in her sample. No San could explain quite how these highly variable points got narrowed down into the small, rather standard points of today, explaining that this happened in farming areas such as Gobabis and Ghanzi where ample amounts of fencing wire were available and where San could experiment with many arrow types. This coincides with my observations that stylistic developments in other items, such as in beadwork, take place at a higher rate in areas where materials are plentiful, probably due to more frequent opportunities for comparison (Wiessner 1984). Apparently, then, stylistic differences between language groups originated where boundaries intersect, not in the more isolated centers of language groups. In these areas, contact between the !kung, Nharo and G/wi was intense, but stress-ridden as the settlers attracted San from many areas to their farms, increasing population pressure. It would not be surprising if styles in arrows had played a role in group differentiation at this time. It is possible (although purely speculative) that link shafts were not used as a means of differentiation as they were associated with the old bone points, not the new metal ones. It should also be mentioned that, had availability of metal been greatest in the centers of language groups rather than in the peripheral areas then stylistic development might have proceeded along quite different lines. In summary, there is no evidence in what we know of the history of development of metal projectile points that the different types of points used by the various linguistic groups were the product of arbitrary historical events occurring in isolated populations.

Unfortunately not enough data are available to enable closer investigation of changes in metal points through time, but at least it is possible to say that projectile point styles do conform to current boundaries as would be expected if they were the product of continuous stylistic and social comparison. At the level of the linguistic group, they conform to major boundaries. At the level of the dialect group, dialect boundaries that are distinct today—like that between the northern and central !kung—are marked by stylistic differences, while those that have broken down—like the boundary between the central and southern !kung—are not separable stylistically. At the level of the band cluster, only band clusters like those of the !ko, which are relatively distinct units, exhibit stylistic differences. Thus, boundaries depicted by projectile points are "current," while those depicted by items such as mortars, pestles, and quiver-carrying devices are not.

As would be expected for style, variation is not greatly affected by availability of materials. San in remote areas, such as the Central Kalahari Game Reserve G/wi, make great efforts to obtain

wire, and, even if it is too thin a gauge for the large points, it is still hammered out into the same shape and size at the expense of thickness, making some points bend easily. Finally, for stylistic variation over space, the most important means available to archaeologists to distinguish isochrestic variation from style, the San projectile point case is problematic, because the expected profile of variation over space generated by a relationship of strong group affiliation in combination with moderate degrees of personal expression is similar to the profile of variation expected in many cases of isochrestic variation. Perhaps the only way in which it is possible to gain some perspective on this problem is to compare the range of variation in San projectile points with that in other San metal tools and to compare the pattern of variation over space for projectile points with those of other San artifacts. When range of variation in !kung points is compared to that in other tools such as axes, awls, and spears, it is very narrow indeed. !kung spears have an average length of about 13 cm, with a very wide range of variation between 9 and 23 cm. This means that some spears are more than twice the length of others. Their widths range from 2–4 cm, giving their basic laurel leaf form very different length-width ratios. Axe/adze blades have highly variable forms depending on the source of the metal (i.e., bucket handles, car springs, etc.), and blade length ranges from 7 to 21 cm. The wooden handles of !kung awls come in a variety of shapes as do their carrying cases, and awl needle length ranges from 6 to 15 cm. I do not have enough data to test whether there are areal differences in the sizes and shapes of these tools, but the data I do have give no indications that anything other than statistical differences in frequency of types exist between areas. Because variation in these tools contrasts so sharply with that in !kung points (Wiessner 1983:Figure 3), I believe it is not unreasonable to argue that projectile point size conformity is a means of expressing similarity with a person's camp members, and with exchange partners and their camp members, as well perhaps as with any !kung who might be likely to find the arrow embedded in a dead animal; in other words with those in the population that pools risk. Thus, although stylistic differences may have originated at linguistic group boundaries as a means of group differentiation, similarities within a language group were likely to have been established as a means of in-group affiliation. As for variation over space, other artifacts that participate in identity relationships, such as beaded headbands, do exhibit stylistic differences between !kung band clusters (Wiessner 1984), and there are also dialect differences between these band clusters. For instance, Dobe and /xai/xai San use different morning greetings. It is for this reason that I believe personal and social expression that might allow such areal differences to arise in projectile points are repressed in favor of expressing group solidarity.

In conclusion, I argue that the variation exhibited in Kalahari San projectile points is more likely to have been generated by stylistic behavior than by isochrestic behavior. It can be said to provide an emblem of group affiliation within the population that pools risk (i.e., not vis-a-vis other groups) in that associations with certain attributes of projectile points are so strong that San do not conceive of differentiating themselves personally along the lines of these attributes. No more conscious and distinct a level of group expression would be expected in a society in which groups have no functions as coherent units. Many other items such as beadwork also have group-associated attributes, but ones with much weaker associations. It is perhaps noteworthy that some of the strongest evidence for separating stylistic variation from isochrestic variation comes from historical data and from looking at variation in projectile points within the context of variation in other San artifacts. Finally, I might add that I do not consider the interpretation of the evidence that I have presented here as conclusive, partly because of our incomplete understanding of the historical development of San projectile points and other limitations in the data, but mostly because of our current superficial understanding of isochrestic behavior as a source of variation in material culture. Certainly when a coherent theory of isochrestic variation, its appearance, its roots, its functions, the factors that affect it and the information that it contains is developed, the question of the sources of variation found in Kalahari San projectile points may be raised once again.

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CALCULATING POPULATION AND AGRICULTURAL INTENSITY LEVELS FROM FIELD REMAINS: A COMMENT ON COE'S REVIEW OF "MAYA SUBSISTENCE"

William M. Denevan and B. L. Turner II

The calculation of populations supported by relic raised fields in Mexico and the role of intensive agriculture by the Classic lowland Maya are clarified.

In his review of *Maya Subsistence* (Flannery 1982), Coe (1983) questions the population figures derived from measurement of areas of raised fields: 233,800 people for southern Quintana Roo and 228,000 for the chinampas of the Valley of Mexico (Denevan 1982:190). These figures are only rough estimates, but they underscore the possibilities for estimating population from relic fields, not unlike estimating population from relic house sites. It is worthwhile to look at how the figures were derived and see if they are reasonable.

First, the figure of 228,000 for chinampas is taken directly from Sanders et al. (1979:390). It is

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