Historical and Analytical Perspectives on Architecture and Social Integration in the Prehistoric Pueblos

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Archaeologists working in prehistoric Southwestern pueblos have frequently used architectural evidence as the basis for inferences about social organization and social integration. The history and basic logic of several major approaches are reviewed: ethnographic analogy, assignment of functions or uses to architecturally defined spaces; and interpretation of community organization from analysis of differentiation and spatial patterning among structures. Because artifactual and architectural data are generally employed together, the chapter closes with a review of the use of artifacts in the study of social organization and integration in pueblo archaeology.

Below, we review the history of some of the analytic approaches widely used in studying social integration among the prehistoric pueblos. The emphasis is on architectural evidence, but since architecture is often interpreted with the aid of associated artifacts, and vice versa, it seems appropriate to include a section on approaches that emphasize how social integration can be studied with artifactual data. The review that follows is designed to help provide a historical context for the other papers in this volume. It is selectively biased toward work done in the northern part of the Pueblo Southwest, and especially in the San Juan drainage. It does not pretend to be a comprehensive or complete historical treatment of the several topics that it addresses. These topics include functional classification of architecturally defined spaces, community pattern analysis, inferences from properties of artifacts, and ethnographic analogy. Since ethnographic analogy is an issue in all the analytic approaches that are treated below, we begin with a brief discussion of this topic.

Ethnographic Analogy

Despite archaeologists' "chronic ambivalence" about ethnographic analogy (Wylie 1985:107), it remains a major source of behavioral interpretation of prehistoric cultural remains. Analogical interpretation in archaeology has frequently been uncritical and narrowly based, however—in the Southwest and elsewhere. The similarities between archaeological and historic Pueblo material culture and architecture were noted early, and they served to establish what often has been a facile and uncritical reading of the present into the past.

Much of the early systematic archaeological work in the Southwest was based on the assumption that all the prehistoric settlements there represented an undifferentiated Pueblo culture much like that known from history and ethnography. Taylor (1954) called this the "Cushing-Fewkes" period. Subsequent research documented substantial temporal and geographic variability in the archaeological record, and led to the development of cultural taxonomies (e.g., Colton 1939) that reflected variation in the formal aspects of architecture and material culture. Behavioral interpretations of prehistoric architecture and material culture did not begin to undergo explicit reassessment until somewhat later (e.g., Hawley 1950; Anderson 1969; Hill 1966, 1968, 1970a, 1970b). Only in the last few years have questions been raised about some of the major tenets of the analogical model of prehistoric Pueblo life—in particular, there have been serious challenges to the assumption that both the contact period and prehistoric Pueblos were...
classic tribal, egalitarian societies (e.g., Wilcox 1981; Upham 1982; Lightfoot 1984).

As Lekson has recently argued (1985, 1988), the interpretation of prehistoric Pueblo kivas by generations of Southwestern archaeologists exemplifies the largely unexamined analogies on which many behavioral interpretations of prehistoric Pueblos have been and often continue to be based. Indeed, the inference that prehistoric kivas functioned in the same way as historic ones was made by several influential early observers even without the aid of excavations. For example, in 1849, Lieutenant James H. Simpson wrote of Pueblo Pintado, the first Chacoan site he encountered:

At different points about the premises were three circular apartments sunk in the ground, the walls being of masonry. These apartments the Pueblo Indians call estufas [sic], or places where the people held their political and religious meetings [Simpson 1964:37].

Simpson had, within the previous two weeks, visited the estufas (kivas) of both Santo Domingo and Jemez in the company of Pueblo informants.

J. W. Powell also knew immediately what he was looking at when he viewed a depression adjacent to a small ruin in the Glen Canyon of the Colorado River, during his pioneering exploration of the Colorado River canyons in 1869. He remarks:

In the space in the angle [formed by the masonry rooms], there is a deep excavation. From what we know of the people in the province of Tusayan, who are, doubtless, of the same race as the former inhabitants of these ruins, we conclude that this was a 'kiva' or underground chamber, in which their religious ceremonies were performed [Powell 1875:68].

So far as we can determine, Powell was the first to use the Hopi word kiva in print, instead of the Spanish estufa, a term that had gained popularity on the mistaken presumption that these Pueblo structures were sweatbaths (Mindeleff 1891:111). The ruin Powell visited was partially excavated in 1958 and 1959 during the Glen Canyon reservoir salvage project (Lipe 1960:114-135).

The early uncritical supposition that prehistoric Pueblo kivas all functioned like historic ones became "fossilized" in the early twentieth century when Southwestern archaeologists such as Edgar Hewett made the demonstration of continuities between historic and prehistoric Pueblos the cornerstone of a political battle to establish Pueblo land claims (Lekson 1988). As a result, if any formal similarities in architecture or features could be demonstrated between prehistoric structures and historic kivas, the former were to be called kivas also. Accompanying this kind of formal identification was the generally unstated implication that by analogy the prehistoric kivas housed the same kinds of activities and played the same functional roles in their prehistoric communities as historic period kivas in historic pueblo communities. In other words, the analogical question was posed in either-or terms. Either a prehistoric pit structure was a kiva in the same sense as a historic kiva, or it was interpreted as something else entirely—ordinarily as a domestic pit house, the primary residence of a household (Lekson 1988). Furthermore, the prevailing view of ethnographic kivas emphasized their role as specialized ceremonial structures (e.g., Kidder 1927:490) despite considerable ethnographic evidence that at least Western Pueblo kivas often housed a variety of activities only indirectly related to ceremonies. Although there have been notable exceptions (e.g., Brew 1946; Ambler and Olson 1977; Cater and Chenault 1988), Southwestern archaeologists have tended to accept the either-or form of the analogical question, and to assume that the prehistoric structures that they identify as kivas in fact functioned as specialized ceremonial spaces.

In an "attempt to be provocative rather than conclusive," Lekson (1988) suggests an alternative either-or interpretation: that Anasazi pit structures functioned primarily as domiciliary pit houses until the end of the Pueblo III period at about A.D. 1300, and that "true" kivas displaying the ethnographic pattern of activities and organizational functions emerged only in the Pueblo IV period. His presentation of this view at the 1985 Society for American Archaeology meetings (Lekson 1985) was one of the stimuli for the 1988 SAA session that included the initial versions of most of the papers in this volume.

The functional interpretation of prehistoric kivas and protokivas is a theme that connects all the papers in the volume. Collectively they represent a reassessment, using various lines of evidence and argument, of the analogical identification of prehistoric with historic Pueblo kivas—that is, of the inference that prehistoric kivas functioned in the same way that historic ones did. In the pages that follow this chapter, Adler (Chapter 4) surveys a cross-cultural sample to develop some generalizations about structures used for integrative ritual, thus establishing a basis for general, rather than specific, analogies. Lipe (Chapter 5) and Adams (Chapter 11) examine changes in architectural form and site structure as bases for recognizing changes in the ways kivas and protokivas served community integrative needs. Wilshusen (Chapter 7) traces continuities in feature types and their contexts in pit structures from the A.D. 600s to the ethnographic period. Varien and Lightfoot (Chapter 6) employ a detailed intrasite distributional analysis of both features and artifacts to show functional differences between protokivas and surface rooms in an early pueblo. Blinman, Hegmon, and Plog (Chapters 8-10) all use distributional analyses of arti-
fact types and attributes across a number of sites to test the notion that socially integrative behaviors were differentially associated with Great Kivas, small kivas, or protokivas.

The papers in this volume thus use several lines of evidence and several types of investigation to address the problem of interpreting prehistoric pit structures. In combination, the approaches employed strengthen the assessment of analogies by "expanding the base of interpretation and elaborating the fit between source and subject" (Wylie 1985:101).

The overall result of the studies reported below is to show that either-or forms of the analog question are probably too simple. There are similarities and differences in form and function between prehistoric and historic protokivas and kivas, and the forms and functions of these structures changed substantially through time. Lekson's suggestion that kivas may commonly have had domiciliary functions through the Pueblo II and III periods is given tentative support, but it is also shown that the use of a pit structure to house ritual activities that integrated at least small multihousehold groups can be traced back to the Pueblo I period. In summary, a flexible use of ethnographic analogy, coupled with the examination of several lines of archaeological evidence, can shed new light on an old question and help reformulate it in a more productive way.

Functional Classifications of Architectural Spaces

A long-standing pursuit in Southwestern archaeology is the "functional" classification of architectural spaces into types such as "habitation room," "storage room," "ceremonial room," "kiva," "Great Kiva," "plaza," etc. For example, Fewkes' report (1909) on his work at Spruce-Tree House employed categories such as "plazas and courts," "secular rooms," and "kivas," under the heading "major antiquities." This approach depends on classifying architectural units on the basis of activities inferred to have taken place in them. Strictly speaking, such a classification would seem to be based on use rather than function, unless the organizational role of the structure in some larger configuration is emphasized. On the other hand, "functional classification" has long been used to refer to this procedure (Ciolek-Torrelo 1985:41).

Such classifications depend on the inference of past activities from architectural characters, and/or from associated features or artifacts. Assigning a single "function" or use to an architectural space assumes that a general type of use—e.g., "habitation" was predominant. Archaeologists are increasingly becoming aware of the limitations of these simple monothetic classifications of architectural spaces. For example, gross architectural characteristics may indicate the primary intended use of a structure or space; features and importable artifacts may reflect its primary actual use during its lifetime, and portable items or remodeling evidence may represent its last use or may be thoroughly conditioned by the events surrounding the final abandonment of the space (Schiffer 1976, 1985, 1987; Ciolek-Torrelo 1985). Furthermore, most architectural spaces probably housed numerous activities, and they may not have been limited to particular architectural types.

Although these issues all provide opportunities for productive and informative research, they are far from being well-understood at this point. Despite the limitations of functional classifications of architecture, the approach is time-honored in Southwestern archaeology, and hence has had a significant effect on how Southwesternists have used architectural evidence to make inferences about social integration, and especially about the character and role of religious ritual in the social integration of prehistoric pueblos.

In Southwestern archaeology there is a long history of inferring ritual and integrative uses for kivas and various other architectural forms, as noted above in the discussion of ethnographic analogy. The following comments survey some of the main kinds of evidence and logic used to make these assignments; a thorough historical treatment is not attempted. Once again, the functional interpretation of kivas occupies the bulk of the relevant literature and serves as a model of the approaches that have been used.

The earliest identifications and interpretations of prehistoric kivas were strongly conditioned by the expectation that prehistoric Pueblo cultures were generally similar to those observed historically and ethnographically. Since historic pueblos had kivas that were used for important ceremonies, late prehistoric pueblos would be expected to have these too. How were the prehistoric examples to be identified? Victor Mindeleff (1891:111) suggests a general interpretive principle:

General use of kivas.—Wherever the remains of pueblo architecture occur among the plateaus of the southwest there appears . . . throughout all changes of form . . . the evidence of chambers of exceptional character . . . distinguishable from the typical dwelling rooms by their size and position, and, generally, in ancient examples, by their circular form [V. Mindeleff 1891:111].

In other words, the architectural distinctiveness of one type of structure set it apart from another type; the formal difference presumably implied a functional difference (for a similar argument, see Smith 1952:162). It then took but a short jump to assign the expected "kiva" function to the prehistoric "chambers of exceptional character."
To the extent that an empirical demonstration was considered necessary, it took the form of showing that "ritual features" were associated with distinctive "kiva architecture." For example, Mindeleff examined surface evidence of a prehistoric circular kiva in the Hopi area, and noted a wall niche, which he identified as a katchin kihu or kachina house (V. Mindeleff 1891:117). Because this was a ritually important feature that he had observed in functioning Hopi kivas (V. Mindeleff 1891:121), he inferred that the prehistoric structure was also used for ceremonial purposes. Mindeleff (1891:117) went on to suggest that his observation provided a link between the rectangular kivas common in the historic Western Pueblo area and the earlier circular form, which was rare at Hopi, though common in the San Juan drainage.

Fewkes (1908) also used the presence of a ritual feature—the sipapu—to confirm the ceremonial function of circular kivas in the San Juan drainage. He was aware from his own ethnographic observations and his excavations at Awatovi (Fewkes 1898:613), as well as from the work of V. Mindeleff (1891:117), that sipapus regularly occur in various forms in both historic and prehistoric Hopi kivas. Reporting on the excavations of kivas at Spruce Tree House in Mesa Verde National Park, he remarks about Kiva G:

There is a small circular opening in the floor representing symbolically the entrance to the underworld, called by the Hopi the sipapu. . . . The sipapu is the most revered place in the kiva, and about it are performed some of the most sacred rites. . . . This is the first recognition in print of a sipapu in a circular kiva [Fewkes 1908:391].

In his seminal 1891 publication on Pueblo architecture, Victor Mindeleff had also suggested another interpretive principle—that of survivals—that proved influential in later functional interpretations of kiva, protokiva, and pit house architecture. Mindeleff thought that kiva construction would be likely to display

. . . survivals of early methods of arrangement that have long ago become extinct in the constantly improving art of housebuilding, but which are preserved through the well-known tendency of the survival of ancient practice in matters pertaining to the religious observances of a primitive people [V. Mindeleff 1891:111-112].

This established an expectation that, if they were indeed used for religious purposes, kivas should retain architectural characteristics of earlier residential structures (see also C. Mindeleff 1897:174). The notion of survivals in religious architecture provided a context in which documentation of the gradual appearance of the attributes of "kiva architecture" was implicitly seen as documenting a correspondingly gradual functional shift from residential pit house to specialized ceremonial chamber:

The findings on Alkali Ridge, considered in conjunction with the work of others, notably Morris, Roberts, and Martin in the San Juan drainage, permit us now to present a more complete story than has ever before been possible of the steps by which the earth lodge of the early agriculturalists on the Colorado Plateau has been transformed into the sacred temple of their modern descendants [Brew 1946:203].

In this scenario, the problem became one of determining how much architectural change was required before a residential pit house could be considered a ceremonial kiva. Hence, a focus on the formal details of architecture (e.g., Lancaster and Pinkley 1952) was inappropriate to pursuing the problem, in addition to being consistent with the prevailing taxonomic interests of the 1930s through early 1960s. The concept of the protokiva (Morris 1939:30-31;72) also helped resolve the issue of "What is a kiva?" (Smith 1952) by locating in the Pueblo I period a form architecturally and presumably functionally transitional between pit house and kiva. The circular San Juan kivas of the Pueblo II and III period were generally considered full-fledged ceremonial structures (Brew 1946:213), despite their substantial differences in size, shape, and position when compared with ethnographically described kivas (cf. Lekson 1988).

The "ethnographic model" of room function that developed from these nineteenth and early twentieth century studies posited that at least habitation, storage, and ceremonial structures should be present in prehistoric pueblos (Ciolek-Torrello 1985). This model has often led to the uncritical assignment of structures to these predetermined functional classes on the basis of a cursory analysis of gross architectural characteristics.

In the last several decades, archaeologists have attempted in a number of studies to examine this model critically by treating gross formal variation in architecture as a starting point for functional analysis. That is, variations in the size and form of structures are used as the primary indicators of functional differentiation, but the resulting classification is tested against variability in associated architectural details, features, artifacts, and/or ecofacts. The presumption is that robust functional patterning should be expressed in the covariation among some or all of these kinds of phenomena.

The best-known example of this approach is Hill's work at Broken K Pueblo in Arizona (Hill 1966, 1968, 1970a, 1970b). Hill (1970a) subdivided the population of excavated rooms at Broken K into three groups, on the basis of size and distinctive morphology. After showing that each group also displayed non-random associations of features such as mealing bins, hearths, and ventilators, he hypothesized that there were three
functional room classes: habitation, storage, and ceremon­
ial, as in the historic Western Pueblos. On the basis of
activities reported to occur in these classes of rooms
in Western Pueblo settlements, he developed a list of
"test expectations" for archaeological associations of
artifacts and ecofacts with these room classes. The
archaeological record showed generally good agree­
ment with the expectations, and he concluded that the
functional room types at Broken K were similar to those
at historic Western Pueblo villages. Although the statis­
tical methods used to reach this conclusion can be
criticized (cf. Ciolek-Torrello 1985), our interest here
is in the basic logic of the approach.

Adams (1983) has recently assembled evidence to
show that gross architectural variation in room size and
location correlate well with functional differentiation
among rooms in historic and protohistoric Western
Pueblo settlements. Hence, he strengthens the ethnog­
graphic side of the "ethnographic model."

In a recent study of the social use of space at Turkey
Creek Pueblo in east central Arizona, Lowell (1988)
showed that a room's hearth type was a good predictor
of its size and of other architectural and artifac­tual
variables as well. On this basis, she argued that rooms
with rectangular hearths were habitations; rooms with
circular hearths were "miscellaneous activity" spaces;
and rooms lacking hearths were used for storage. Addi­
tionally, two small clusters of rooms were inferred to
be "kiva room groups" on the basis of their spatial
association with the site's Great Kiva as well as their
distinctive pattern of architectural, feature, and artifact
characteristics. Lowell (1988) did not argue that these
variables specifically indicated ritual activity, only that
their pattern of co-occurrence was distinctive. She sug­
gested that the two kiva room groups may have helped
link the two main residential divisions of the settlement
with the centrally-located Great Kiva, where village­
wide integrative activities presumably were carried out.

The paper by Varien and Lightfoot (this volume) also
uses gross variation in architectural form (pit structure,
front surface room, back surface room) as the starting
point for analysis, and uses the associations of features
and artifacts to test a null hypothesis that there was no
functional difference among the three types of struc­
ture. The artifacts and features do in fact vary strongly
among the three structure types, and the null hypothesis
is rejected. Functional interpretation of the associated
artifact and feature assemblages employs a mix of gen­
eral and specific analogies. The authors conclude that
the data are consistent with use of the back rooms
primarily for storage and of the front rooms for domes­
tic activity, but that the pit structures show the greatest
evidence of both domestic/residential and ritual activi­
ties.

Ciolek-Torrello (1978, 1985) used an inductive multi­
variate pattern-seeking approach to define functional
room types by recurrent associations of various floor
features and floor artifacts at Grasshopper Pueblo, a
large Pueblo IV period site in Arizona. An R-mode
factor analysis was used to define five (later reduced to
four) factors representing groups of spatially associated
variables (i.e., the artifacts and features as distributed
across rooms), and these factors were interpreted as
representing sets of related activities (e.g., manufactur­
ing, food storage, food preparation, etc.). A Q-mode
factor analysis was then used to group the rooms in
terms of the pattern of occurrence of the same variables
used in the R-mode analysis. The six room groups thus
obtained were interpreted as functional types (e.g., lim­
ited activity rooms, habitation rooms, etc.). Each room
type could be characterized in terms of the propor­tional
representation of the activity sets that comprised the
R-mode factors (Ciolek-Torrello 1985:54).

One result of the analysis was that no special class
of "ceremonial structures" emerged. Variables that
could be interpreted as indicating ritual activities
tended to occur within one room type (Limited Activi­
ty) but only in about a third of these cases. These
variables also were not confined to the three rooms in
this class that had "kiva-like" benches (Ciolek-Torrello

The value of this approach is that the resultant group­
ings are multivariate and polythetic, and hence can be
based on a fuller use of the data than can monothetic
approaches, which must by definition be based on only
a few variables—usually gross architectural characters.
The polythetic room types can each be characterized in
terms of the relative strength of the several activity
factors, rather than having to be considered as the ex­
clusive province of a single kind of activity. Because
floor artifacts and features were used in Ciolek­
Torrello's analysis, the functional interpretations refer
to the late or last uses of the rooms, rather than to
intended uses, which might still be recoverable from
variation in gross architectural features. The reliance
on floor artifacts also makes the analysis subject to the
difficulties of determining how site abandonment might
have affected the patterns of use and discard which
created most of the portions of the archaeological re­
cord that were analyzed (cf. Schiffer 1985, 1987).
Ciolek-Torrello (1985) has attempted to control for
these effects, but much remains to be understood about
these assemblage formation processes.

There are other studies of prehistoric pueblos which
have creatively addressed the question of functional
room types (e.g., Dean 1969; Jorgenson 1975;
DeGarmo 1976; Shafer 1982), and countless studies
have used the concept in one form or another. The
examples discussed above provide a sampling of the

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range of approaches that have been and continue to be used.

Regarding architectural indicators of social integration, the "functional type" discussions are dominated by the issue of interpreting "ordinary" or "regularized" kivas. Other potentially important structures, such as Great Kivas, plazas, shrines, tri-walls, and bi-walls, have received less attention. It seems generally to be assumed that plazas in prehistoric pueblos functioned much the same as they do in historic ones—some critical examination is obviously needed here. The multiple-walled buildings, which lack obvious ethnographic analogs, have been interpreted in a great variety of ways. Rohn (1977) proposes that these structures were involved in some way in rituals that helped integrate dispersed communities; Plog (1974) hypothesizes that they included storerooms, and were used in ritually-mediated food distribution; Vivian (1959) argues that they were domiciles of a "developing priestly class"; while Reyman (1986) suggests some were actually platform mounds, with the multiple chambers giving stability to the structure.

There seems to be general agreement that Great Kivas served as places of assembly for sizable groups, and that they must have housed activities that helped integrate several social segments, commonly from several settlements. Credible analyses that attempt to go beyond this very general kind of functional characterization are rare, though Lightfoot (1988) has recently analyzed the scale of work and cooperation required to build a Great Kiva. Fritz (1978, 1987) explored the layout and features of Chacoan Great Kivas as an expression of aspects of world view, while Plog (1974) discussed the possibilities that Great Kivas were involved in ritually-mediated redistribution. These leads remain largely unfollowed, however.

**Community Pattern Analyses**

Historically, and to some extent logically, related to the functional classification of architectural spaces are approaches that base inferences about prehistoric organization on the relative frequency and spatial position of structures in and among settlements. At intermediate levels of scale, this has been called "community pattern analysis" (Chang 1958:299) and at larger scale, it merges with settlement pattern studies (Willey 1953, 1956). Today, relational analysis of architectural units at an intrasite scale may often be referred to as part of "site structure analysis."

Spatial/configurational analyses of architecture have generally been used to identify and characterize the size and composition of social or socioeconomic groupings—e.g., households, residence units, communities, and the like. The starting point for this kind of analysis is a "functional" or use-based classification of architectural units. Inferences about the integration of communities or social segments have often depended on the frequency and spatial distribution of structures such as Great Kivas that were presumably used for ceremonies or other socially integrative activities (e.g., Longacre 1966; Lipe 1970).

This approach depends in part on an underlying assumption that humans use space efficiently, if not optimally. That is, it assumes that humans locate their activities to provide easy and regular access to important resources or social interactions. Which social activities and relationships they considered important can therefore be inferred from the spatial relationships among their architectural facilities and artifact assemblages, viewed as products of patterned behavior. Spatial inferences of this sort are of course strengthened when they serve as the basis for hypotheses which are then tested against other types of data, or alternatively, when proximity relationships are used as the tests, and the hypotheses are generated elsewhere.

Another assumption of the spatial/configurational approach is that the frequency and distributional regularity of integrative structures is inversely correlated with the scale or level of integration they are associated with. That is, if kivas are both common and regularly distributed, they must have been used by relatively small and redundant social segments. Great Kivas, on the other hand, are not only large but relatively rare—evidence that they served large numbers of people. This argument is stronger if it can also be shown that the Great Kiva in question was centrally located with respect to a number of habitations (i.e., that the structure was located so that it could be efficiently accessed by a relatively large population).

Inference of social organization from community pattern in the Pueblo Southwest was pioneered by Lewis H. Morgan in *Houses and House-Life of the American Aborigines* (Morgan 1965 [1881]). In this work, he used both archaeological and ethnographic data on domestic architecture, much of it from the Southwest, to support his ideas about the evolution of society that had been developed in *Ancient Society* (Morgan 1985 [1877]):

> House architecture, which connects itself with the form of the family and the plan of domestic life, affords a tolerably complete illustration of progress from savagery to civilization. Its growth can be traced from the hut of the savage, through the communal houses of the barbarians, to the house of the single family in civilized nations . . . [Morgan 1975 (1877):6].

Documenting "communal houses" was important to Morgan because they reflected "gentile society," a key element of the stage of barbarism. Families related through the intermarriage of *gentes* (a gens was similar
to a unilineal descent group) were expected to display “communism in living” through application of the “law of hospitality.” They should “make common stock of . . . provisions [and erect] joint tenement houses large enough to accommodate several families” (Morgan 1965 [1881]: 63). He thought that structures such as the Iroquois longhouse and the historic pueblo clearly reflected gentile organization.

Though he was aware of “estufas” (Morgan 1965 [1881]:174) and the subdivision of both historic and prehistoric pueblos into discrete apartments (Morgan 1965 [1881]:154-155; 175), Morgan focused primarily on the size and degree of aggregation of the settlement as evidence of Pueblo social integration. He believed that even though families might have separate living quarters, the “law of hospitality” would require common stores or at least the free sharing of food and other goods (Morgan 1865[1881]:42-62). In order to further test his theories, Morgan proposed a program of archaeological and ethnographic research extending from the American Southwest through Mexico to Peru (Wilcox 1976:32-33) and Adolf Bandelier was soon commissioned by the Archaeological Institute of America to carry it out (Wilcox 1976:32-34). On the basis of his work in the Pueblo Southwest, Bandelier (1884, cited in Wilcox 1976) argued that Morgan’s evolutionary theory could account for the archaeological presence of both small and large pueblo settlements. Early small-house settlements, occupied by perhaps one or two clans, gave way to the larger communal houses as part of the evolution of society from Upper-level Savagery to Lower-level Barbarism (Wilcox 1976:35). Cushing (1886, 1888; summarized in Wilcox 1975:35-36) also supported the theory with arguments that the “small houses” were each occupied by a single gens or clan, and that the large communal house or pueblo proper represented a gathering together of several clans.

This developmental sequence is reflected in aspects of the Pecos Classification (Kidder 1927) and has had profound, persistent, and often quite constraining effects on Southwestern archaeology. In addition to difficulties that derive from the improbable identification of small houses as clan residences (Parsons 1940; Aberle 1970), this sequence also led to a reluctance to accept contemporaneity among these different settlement types (cf. Wilcox 1976). Eventually, work at Chaco made it clear that even the Great Houses there were contemporary with nearby small houses (Kluckhohn 1939), while Brew (1946) documented the occurrence of large multiunit pueblos in the Pueblo I period, earlier than the small single-unit pueblos he excavated in the same area. The main point to be made here, however, is that the rudimentary early work of Morgan, Bandelier, and Cushing established the principle that the spatial configuration of architectural elements could serve as a basis for inferring aspects of social organization.

T. Mitchell Prudden (1903, 1914, 1918) elaborated this approach and provided empirical documentation for his inferences in the form of both excavation (1914, 1918) and survey (1903) maps and descriptions. On the basis of extensive reconnaissance in the San Juan drainage (Prudden 1903:234-239) he noted the recurrent association of an estufa or kiva, a small rectilinear block of contiguous surface rooms (usually located north of the kiva), and a burial or burial-and-trash mound (usually located south of the kiva). Adjacent rooms in the surface pueblo or “house” were often connected by doorways. This architectural complex he called the “unit type pueblo.”

These small “units” frequently stood alone, but tended to occur “in community groups” (Prudden 1918:47). Not uncommonly, however, they were joined together into larger pueblos, though without losing their structural discreteness (Prudden 1903:234). These small house ruins were often spatially associated with “a larger and more commanding house,” and also occurred close to “the great community houses” on Squaw, Bug, and Goodman Points (Prudden 1918:47).

Prudden interpreted unit type pueblos as the residential facilities of a basic social group:

... if these simplest residences be recognized as marking family or clan units, as well as being structural units, the practices and traditions of the Pueblo people of today, which center in and are so largely determined by clan or other social relationships, make clear enough the impulse which led small groups of these earlier people, even in the near neighborhood of others, to maintain not only their separate houses, but also their separate ceremonial chambers and places of burial [Prudden 1914:34].

Prudden was aware that the prevailing theory of the time required that the small houses be the predecessors of the “communal” ones, but he ultimately decided (Prudden 1918) that this proposed sequence could be neither proved nor disproved on the basis of evidence at hand. He concluded, however, that

there is evidently a close relationship between the larger and smaller forms, as well as between the artifacts which the excavations of both have disclosed. The motive for the different types of building seems, in part at least, to have been determined by the difference in site and some as yet undisclosed community requirements [Prudden 1918:49].

Considered in the abstract, Prudden’s work established that the smallest commonly recurrent architectural unit was not a single structure, but a small spatial cluster of structures and other elements (e.g., the burial mound). This complex or “unit” was composed of a redundant set of functionally different elements, which
showed consistent spatial/relational patterning within
the unit. Functional interpretation of the unit as a whole
led to the conclusion that it represented the space and
facilities used by a basic social segment. These social
segments were not isolates, but were parts of communities.
The architectural and spatial expression of these
communities might be a loose cluster of units, a cluster
of units centered on a larger pueblo, or just a large
pueblo. Most of the large pueblos themselves could be
analyzed as being aggregates of the basic social/archi-
tectural units. That the structural integrity of the archi-
tectural unit was preserved within the larger aggregate
indicated that the social integrity (and independence?)
of the basic social segment was probably preserved
also. The relationship between the small house units
and the larger pueblos might be sequential, but did not
have to be; site-specific environmental factors, or
"community requirements" might result in both types
being present concurrently.

Fewkes (1911:79-80; 1919:69-76) used the pre-
sumed sequence from small house to communal house
in the San Juan drainage as the basis for a theory of
organizational change that accounted for changes in the
ratio of kivas to rooms from the prehistoric to the
historic pueblos:

... we necessarily have in the growth of the community
house the story of the social evolution of the Pueblo
people. Clans or social units at first isolated later joined
each other ... The inevitable outcome would be a
breaking down of clan priesthoods or clan religions and
the formation of fraternities of priesthoods recruited
from several clans. This in turn would lead to a corre-
sponding reduction and enlargement of ceremonial
rooms remaining. Two kivas suffice for the ceremonies
of a majority of the Rio Grande pueblos; but Cliff Palace
with a population of the same size had 23 ... [Fewkes
1919;75-76].

Community pattern analysis and, in particular, the
changing ratios of kivas to rooms were employed by
Steward (1937, 1955:151-172) as part of a theoretical
study of how bands based on single lineages might have
evolved into multilineage societies having non-local-
ized clans. Steward reviewed the "unit type pueblos" of
the San Juan area, and concluded that

... it is difficult to reconcile the division of the early
villages into small house clusters with any other social
unit than a unilateral lineage or band. Each house cluster
is so large that it must have sheltered several families.
But there would be no motive for unrelated families to
band together instead of living in houses located at
random. ... A rule of residence, however, would pro-
duce lineages whose houses would fit the archaeological
facts. Archaeologists have frequently called these "clan
houses," but this must not be understood to mean clan in
the Hopi sense [Steward 1937:99].

Defensive needs, indigenous population growth, or
movement of new groups into an area could cause mul-
tiple lineages to settle together. If these kin groups
attempted to maintain real or fictive kinship ties and
exogamy, clans would automatically result, and these
would rapidly become nonlocalized. (Parsons [1940]
discusses how difficult it would be for a growing kin
group to maintain residential proximity, especially in an
aggregated settlement). The development of clans is not
inevitable, as illustrated by their weakness or absence

Steward (1937) interpreted the unit pueblo kiva as an
important element in the ceremonial integration of the
localized lineage. Accepting the generally favored view
that communal pueblos post-dated the small houses, he
suggested that "the formerly separated small groups ... do not lose their social and ceremonial integrity" when
they begin to amalgamate in the Pueblo II period. In
Pueblo III and especially in Pueblo IV, however, the
decreasing ratio of kivas to rooms is interpreted as the
result of clan growth, perhaps by absorption of unre-
lated lineages, and eventually by the severing of the
clan-kiva link (though he recognizes that vestiges of
such a linkage remain ethnographically at Hopi). Stew-
ard does not specifically address the function of kivas
in historic Pueblo villages, but it is implied that the
reduction in kiva frequency and the severing of their
ties with descent groups is part of a general process by
which integration and political autonomy of the village
is enhanced at the expense of kin groups.

Rohn (1965, 1971) used the spatial patterning of
architectural elements to infer several levels of social
integration at Mug House, in Mesa Verde National Park.
Unlike previous workers, he specifically attempted to
avoid inferring kinship-based groupings such as "clan"
and "lineage" from the spatial arrangements of facili-
ties that he observed. He argued that the archaeological
patterns reflected not kinship patterns per se, but
the durable remains of domestic cooperation.... It is
this sharing of material goods and the cooperation in-
volved in satisfying the needs and wants of all the
individuals concerned that may be reflected in archaeo-
logical remains. Thus the prehistorian may discern
traces of groups that can be called socioeconomic, that
is, their cohesion probably rests on sociological factors,
but their recognition by the archaeologist depends on
cooperative economic behavior [Rohn 1965:65].

Rohn (1965:65) used "the juxtaposition of rooms
with different functions, building sequences, patterns
of movement indicated by doorway locations, and the
placement of hearths and other domestic features" to
establish different levels of interaction and hence of
inferred grouping. The smallest unit was the room suite,
considered to be the facilities used by a household.
Room suites were clusters of walled spaces that in-
cluded at least one dwelling room, several storage rooms, a small outdoor work area, and sometimes a sleeping or work room. The functional classification of spaces depended on patterned differences among structures in size, location, and floor and wall features. Specific groupings of spaces into suites were based on proximity, interconnections inferred from doorway orientations, evidence that structures were built or remodeled together, and in some cases, on formal similarities in details of construction.

The second level of grouping was the “habitation unit,” a term used by Bullard (1962) to refer to the association of a small number of surface rooms with a pit house or kiva. Rohn (1965:67) notes that this unit equates roughly to Prudden’s “unit-type pueblo” and to Fewkes’ (1909) “courtyard unit.” Rohn did not correlate a specific kind of socioeconomic unit with this architectural/archaeological unit, but suggested that whatever sort of kin grouping occupied the old habitation units, it was undergoing modification during the Pueblo III occupation of Mug House, and has either passed out of existence since then, or has been modified further so it no longer affects site layout [Rohn 1965:68].

A third level of grouping was recognized on the basis of aligned doorless house walls that separated Mug House into two parts. Rohn (1965:69) suggests that this may reflect “some form of dual social division” but does not elaborate on this idea. A final level of social grouping is the community, which consists of Mug House, several nearby smaller sites, and facilities such as a water catchment that was probably used jointly by the residents of the several settlements that comprised the community.

Rohn’s study of Chapin Mesa, which was completed as a dissertation in the early 1960s but not published until 1977, also includes some pioneering Southwestern applications of community pattern analysis. Rohn delineates communities on the basis of clusters of contemporaneous sites, most of which also display evidence of shared economic facilities (e.g., water catchment/distribution systems) and/or ceremonial facilities (e.g., a Great Kiva or bi-wall structure). Large sites, such as Cliff Palace, are interpreted as having provided some of the ceremonial facilities used by smaller outlying settlements that were part of the community.

Dean (1969, 1970) also analyzed the spatial patterning of functionally different structures in Pueblo III cliff dwellings to arrive at inferences about community organization and integration. Unlike the Mesa Verde sites studied by Rohn, the Tsegi Phase Kayenta cliff dwellings Dean studied displayed no intermediate level of grouping between the room cluster (household) and the settlement (village). Kivas were relatively rare, and there was a “lack of spatial or architectural relationships between kivas and subvillage residence units,” i.e., specific room clusters (Dean 1970:165). From this, he inferred that kivas “must have been associated with some sort of nonlocalized social unit that included members of a number of households” (Dean 1970:165). The involvement of such dispersed groups in ritual would have strengthened village-level integration (Dean 1970:166), as it does in ethnographically known Western Pueblo communities.

Other architectural data, used in conjunction with tree-ring dates on structural beams, provided evidence of patterns of integration:

Dendrochronological analyses show that tree-cutting at Betatakin was a communal rather than an individual or household activity [Dean 1969:80]. The construction of large community structures . . . [also] required the coordinated efforts of large groups of people [Dean 1970:168].

Differences in patterns of integration between the two large cliff dwellings—Betatakin and Kiet Siel—were also noted. The stockpiling of timbers prior to construction, the pattern of its growth, and the homogeneity of its architecture indicated that Betatakin “was a unified ‘community’ throughout its history, whereas Kiet Siel was a frequently changing assemblage of historically unrelated households or fragments of other communities” (Dean 1970:168). The lack of Great Kivas or of formal spatial relationships among sites indicated to Dean that there were no strong structural relationships among villages. However, the Tsegi villages “were probably linked into a loosely defined ‘community’ by a network of informal ties based on trade, interpersonal relations, intermarriage, and contiguity” (Dean 1970:169).

In the analysis of Turkey Creek Pueblo discussed above, Lowell (1988) used wall construction events and patterns of redundant association among functionally different room types to infer the presence of both household and suprahousehold residential groups. Furthermore, the settlement could be divided into two main architectural blocks, both of which adjoined a Great Kiva and plaza. The two previously-discussed groups of “kiva rooms” were positioned so as to link each of the two main roomblocks with the Great Kiva. Lowell (1988) interpreted this configuration as indicating a possible dual division of the settlement as well as a village level of social integration.

As discussed above, artifactual data have generally been used to develop functional classifications of architectural spaces in pueblos, or to infer the activities that took place in these spaces. In the 1960s, Hill (1966, 1970) and Longacre (1964, 1966, 1970) launched an ambitious attempt to use the distributions of artifacts and ecofacts as direct indicators of the distribution and composition of social groups at prehistoric pueblos, in
conjunction with spatial analysis of variation in architecture and features. The basic approach was to distinguish various blocks of rooms within the pueblos by the occurrence in them of distinctive constellations of variables that ranged from ceramic types and design elements to other artifact or feature types. The room clusters thus defined were then interpreted as the areas occupied by residence groups (Hill 1966) or localized descent groups (Longacre 1964). Comparison of organizational patterns at the Carter Ranch Pueblo (Longacre 1964, 1970) with those at the later Broken K Pueblo (Hill 1966, 1970) plus consideration of other settlement data from the region led to inferences about changes in modes of social integration (Longacre 1966; Hill 1966). Increasing aggregation of the population into larger villages, the appearance of Great Kivas, the decreasing ratio of kivas to rooms, increased size of residence groups, the tendency for architectural style to become more homogeneous, and the possibility that Broken K artifact distributions indicated some degree of localized production and exchange of goods all were taken to indicate an increasing scale and intensity of social integration, both within and between villages, perhaps in response to increasing climatic variability and subsistence risk (Longacre 1966; Hill 1966). This work has been challenged repeatedly on the basis of the adequacy of the statistical methods employed (Lischka 1975; Dumond 1977) and of the concepts used to model social organization and link it to archaeological variables (Allen and Richardson 1971; Stanislawski 1973, 1977). Hill and Longacre also do not appear to have taken sufficient account of the patterning introduced by processes of roomblock growth and remodeling (Wilcox 1988) and assemblage formation (Schiffer 1987:323-338). Nevertheless, the ambitious and imaginative nature of the work, and the attempt to apply new quantitative methods to the study of social organization, had a powerful and largely positive effect on a generation of archaeologists in the Southwest and elsewhere.

Southwestern archaeologists also have attempted to use differences in architectural scale or elaboration among buildings as an indicator of the degree of status differentiation or sociopolitical hierarchy in pueblo communities. As compared with the structures used by "ordinary" households or communities, the facilities of leaders and high status groups are expected to display more living and storage space per capita, higher investment in construction, and more ostentatious facades (Lightfoot and Feinman 1979; Lightfoot 1984; Lipe 1986; Kane 1986; Lipe and Kane 1986; Orcutt and Blinman 1987; Wilson 1989).

Recent Southwestern literature presents widely differing interpretations of the sociopolitical complexity of prehistoric Southwestern pueblo groups in the Pueblo III and IV periods (e.g., Upham 1982, 1985; Upham and Plog 1986; Plog 1983; Graves et al. 1982; Whittlesey 1984; Reid 1985). There is general agreement, however, that in the Pueblo II and early Pueblo III period, the "Chaco Phenomenon" (Cordell 1984:246-274; Judge 1979) exhibited a more complex social organization than either earlier or later Pueblo societies. Schelberg, for example, recognizes a three-tiered administrative hierarchy among settlements having Chacoan "Great Houses," and proposes a level of sociopolitical complexity "similar to that of the chiefdom" (Schelberg 1984). Much of the discussion of Chacoan social organization revolves around the social implications of the Great House architecture. These buildings differ markedly in scale, planning, labor investment, and ostentation from the smaller, more typical Anasazi settlements that are generally associated with them (Marshall et al. 1979; Lekson 1984; Powers 1984; Schelberg 1984; Toll 1985; Sebastian 1988). Although the evidence for actual social stratification appears weak (Johnson 1984) this was clearly "not an acephalous society" (Sebastian 1988:59). Sebastian (1988) argues that Chacoan Great House architecture was developed by emerging leaders in the tenth century A.D. as part of a competitive strategy to attract followers by sharing stored food in times of low agricultural production. The increasingly monumental Great Houses of the eleventh century, on the other hand, were part of a strategy by which leadership groups institutionalized their positions, perhaps by asserting control of the relationship between society and the supernatural world.

Another aspect of the Chacoan built environment with implications for social integration is the system of roads that evidently linked "Chacoan Outlier" sites with Chaco Canyon, and to some extent with one another, over an area nearly 200 km. in diameter (Marshall et al. 1979; Kincaid 1983; Powers et al. 1983; Betancourt et al. 1986; Nials et al. 1987). The roads provide the most convincing evidence that Chacoan social organization had a regional dimension. Evidence that thousands of building timbers were transported more than 75 km. from highland areas to Chaco Canyon (Betancourt et al. 1986) also convincingly documents the scale of Chacoan regional organization and a degree of work planning and control not found in earlier or later Anasazi developments.

Artifacts and Social Integration

Artifacts are used in the interpretation of almost all archaeological sites; in this sense, of course, any discussion of social organization and integration includes the study of artifacts. However, at least five general classes of artifactual evidence can be identified that are
used more directly in research on social organization and integration in the Southwest. These are grave goods, ceramic vessel form and disposal pattern, ritual objects, style, and exchange. With the exception of grave goods, all are used in the analytical papers in this volume.

Mortuary analysis is often an excellent means of studying various aspects of prehistoric social organization. Although burial descriptions are standard in many Southwestern site reports, studies of burial treatment and grave goods in relation to social organization have been limited. The Pueblo III burials at the Rainbow Bridge Site 568 were interred with a relatively rich assemblage of artifacts. In her reanalysis of the material, Crotty (1983:60) argued that the “preferential treatment accorded senior women almost certainly denotes social organization based on tracing descent through the maternal line,” and that differential treatment within age and sex categories indicates a degree of stratification not necessarily unlike that of the Western Puebloan clan system. Using mortuary data from Chaco Canyon, Akins (1986) argued that three levels of burials (differentiated on the basis of location as well as grave goods) indicate three levels of social rank. Mortuary data are also used in the debate over sociopolitical complexity in the Mogollon area. In her analysis of the large and well-preserved burial population of Grasshopper Pueblo, Whittlesey (1984, summarizing her 1978 dissertation) argues that differential mortuary treatment can be attributed to age and sex differences and to membership in religious societies such as those known from ethnographic pueblos. However, her conclusions are disputed by F. Plog (summarized in Upham and Plog 1986). He and other researchers working at Nuvakwetaqa argue that the mortuary remains at that site, though badly disturbed, support their model of a society in which access to resources was restricted and controlled by a decision-making elite (Upham 1982; Upham and Plog 1986).

The use and disposal of certain sizes and forms of ceramic vessels can provide information about the context of use, including the size of the group and the occasion. Toll (1985) interprets the enormous quantity of ceramics in the trash mound at Pueblo Alto in Chaco Canyon as the remains deposited by large gatherings, possibly at harvest feasts. Turner and Lofgren (1966) use serving bowl and cooking jar sizes to estimate prehistoric household size, and they suggest that very large jars, common only after A.D. 900, were made for gatherings of more than one household and therefore were associated with the evolution of kivas. Blinman uses both lines of evidence here to support his model of prehistoric “potlucks.” Bowl:jar ratios (there are relatively more bowls at sites with oversized pit structures) and cooking jar size (large cooking jars are not associated with oversized pit structures) suggest that food was prepared elsewhere and brought to gatherings at the oversized pit structures.

Archaeologists have long identified special or ritual objects in their collections. Despite the time-honored joke—if it looks weird and it’s not obviously functional, it must be a ritual object—many researchers have used great care in their interpretations. Ellis (1967) in her study of *tcamahias*, and Vivian et al. (1978) in their study of wooden artifacts used very careful and detailed ethnographic analogy in their arguments. Vivian et al. concluded that the wooden artifacts were probably not alters but were used in some sort of public dramatization, and Ellis argued that at least some of the tcamahias were symbolic of the supernatural. Others emphasize the need for contextual information in interpretations of unusual objects (see Bradley 1988). The special nature of Chaco cylinder jars is suggested not only by their shape but also by their distribution—most were found in unique contexts in Pueblo Bonito (Neitzel 1985). Finally, archaeologists have noted certain attributes that may indicate the special, possibly ritual, roles of certain artifacts. These attributes include the labor invested in the production and painting and/or the symbolic meaning of certain wares and design styles (e.g., polychromes [Feinman et al. 1981] or fine hackure [Neitzel 1985; Windes 1984]). In this volume Varien and Lightfoot (Chapter 6) examine the distribution of possible special artifacts across the Duckfoot site, Wilshusen (Chapter 7) examines the marks left by the use of ritual objects (prayer sticks and alters like those known ethnographically from rituals), while Hegmon (Chapter 9) and Plog (Chapter 10) both consider the attributes of ceramics that might indicate a special role in ritual.

A historical review of style studies shows that researchers are developing increasingly detailed understandings of why people make and use style and how style relates to social organization. Early studies in the Southwest and elsewhere basically equated groups of similar traits—including ceramic style and technology as well as architectural forms—with cultures or ethnic affiliations. Kidder (1924:343), observing contractions in zones of architectural and ceramic similarity, concluded that Pueblo culture “passed through an early phase of wide territorial expansion marked by great uniformity of culture. It then drew in upon itself and enjoyed a period of efflorescence characterized by strong specialization in different branches.” Colton used ceramics as primary evidence in his work to delineate *Prehistoric Culture Units and Their Relationships in Northern Arizona* (Colton 1939). For example, a phase—recognized in large part on the basis of ceramics—“is a concept of the culture of an Indian tribe during a short period of its history” (Colton 1953:68).
In the 1960s researchers began looking in more detail at stylistic similarities and differences (primarily in painted designs on ceramics), and thus were able to make more detailed inferences about social organization. In the tradition of the New Archaeology these researchers rejected the equation of traits with culture. However, their explanation of stylistic variation was little changed from earlier decades, except that style was equated with interaction instead of culture—"the smaller and more closely tied the social aggregate, the more details of design would be shared" (Longacre 1970:28). Clusters of design elements were used to identify uxorial local residence units (if women were the potters) within a community, and at Carter Ranch these units were associated with kivas (Hill 1970b; Longacre 1970). Studies of stylistic similarity and homogeneity were also used to study interaction between communities (Leone 1968; Tuggle 1970).

Following soon after were other studies that found fault with nearly every aspect of the early attempts at "ceramic sociology," including the assumption that styles were passed from mother to daughter (Stanislawski 1973), the statistical methods used (Plog 1978a, 1978b), and lack of control of factors such as ceramic exchange that could affect the distribution of styles (Plog 1980a, 1980b). However, the initial studies and the criticisms that followed prompted further research that focused on two general classes of questions. First, why do people paint their pottery and create these different styles? Second, what are the variables of style most appropriate for study?

The first question represented a fairly radical theoretical change from the earlier studies. Drawing from the information exchange theory of Wobst (1977) researchers considered style to have a function as a means of transmitting information (Plog 1980a). That is, prehistoric people did not just passively accept the style of those around them; rather, they actively used style to convey information about their social position and group affiliation. Thus, style could actually be used to establish social networks and increase social integration. Braun and Plog (1982:514-515) interpreted the development of regional stylistic traditions, increasing stylistic similarity between communities, and increasing community homogeneity as evidence for "increasing supralocal cooperation and social integration" indicative of the development of regional tribal social networks. Graves (1982) found that Plog's model of style change based on the information exchange theory did not fully explain design style variation in White Mountain Red Ware; however, Graves also posited an active role for style in symbolizing group affiliation in exchange networks. Hegmon (1986) argued that increases in stylistic diversity on Black Mesa indicated an increase in information exchange, and thus a strengthening of the socially integrative network. She uses similar reasoning in her paper in this volume (Chapter 9), where she argues that the relatively great stylistic diversity in ceramics associated with oversized pit structures can be attributed to information exchange at gatherings of socially distant persons.

As style came to be used to address more and more detailed questions about prehistoric social organization, more attention was given to methods for classifying and analyzing style. The studies are voluminous, and here we give only examples at either end of the spectrum. Some researchers advocate a hierarchical attribute-based approach that can be systematically applied to sherds (Plog 1980a; Redman 1978; Hantman et al. 1984). This approach is used in the paper by Hegmon. In contrast, Washburn (1977; Washburn and Matson 1985) advocates the analysis of design structure, particularly symmetry, which often can only be analyzed on whole vessels, but is argued to be more culturally sensitive than separate elements. Another approach, explicitly focused on social processes, is the production step measure of Feinman et al. (1981). This measure does not analyze design style as such, but it provides a means of quantifying the effort entailed in making different kinds of ceramics and thus identifying more highly valued (generally more elaborate) ceramics. In this volume neither Plog nor Hegmon use the production step measure, but they do attempt to identify special ritual-associated ceramics based on design attributes (the Dogozshi style, and design formality and neatness).

Finally, in what we regard as a very encouraging development, researchers have begun to agree that there are many correct answers to both the above questions. That is, people make and use style for different reasons, some more active than others; and many kinds of stylistic analyses can be used to answer a variety of questions. Plog (1989) found that some patterns of stylistic variation could be best explained as the product of rote learning (isochrestic variation [see Sackett 1985; Wiessner 1983:161]) while other patterns indicate more active use of stylistic symbols in information exchange. Kintigh (1985) suggested that some stylistic attributes might be produced by intentional symbolism and others (possibly more subtle attributes) produced by shared learning contexts. F. Plog (1983) argued that some attributes (including ceramic technology and corrugation styles) distinguish small localities while others (types and wares as well as architectural styles) distinguish provinces and sometimes social alliances that drew relatively autonomous villages "into a larger, overarching social and economic organization" (1983:323; see also Cordell and Plog 1979; Upham 1982). Hegmon's paper in this volume examines different aspects of style (de-
sign diversity, formality, and neatness) as indications of both information exchange and ritual use of ceramics.

Exchange and style are closely interrelated in studies of social organization. Not only must exchange be understood or controlled for in stylistic analyses, but both are part of the same general social processes. That is, both play a role in social interaction; style can be seen as information exchange, and material exchange can help to disseminate stylistic information. Beginning with the pioneering work of Shepard (1942, 1965) Southwestern archaeologists have studied the material properties of artifacts to determine where they were produced (or at least to identify groups of artifacts that appear to have been produced in the same place) and thus to investigate patterns of prehistoric exchange and their relationship to social organization and economy. Not all such studies find evidence for exchange, however. In their analysis of obsidian in New Mexico, Findlow and Bolognese (1982) concluded that much of the archaeological distribution could be explained by direct access procurement rather than exchange. Analyses of Salado Polychromes (widespread in 14th Century Mogollon sites) indicate that the style and manufacturing technology were shared over a large area, but the vessels themselves were not widely exchanged; instead, evidence indicates they were locally produced (Crown and Bishop 1987; Danson and Wallace 1956).

In two areas widely separated by time and space, evidence of exchange demonstrated that communities were not as isolated as some had thought. Shepard (1942, 1965) and later Warren’s (1969) work with Pueblo IV Rio Grande Glaze Wares demonstrated a high degree of productive specialization, exchange, and economic interdependence between villages. Chipped stone and ceramic evidence similarly demonstrated inter- and intraregional exchange in central and northern Arizona (Plog 1980b; 1986). Braun and Plog (1982) suggest that an increase in exchange intensity (greater volume, shorter distance), in conjunction with the development of zones of stylistic similarity, indicates an increase in regional integration. In Chapter 10 of this volume, Plog draws from these studies of exchange and finds that imported red and orange wares are strongly associated with sites with ceremonial structures. Blinman (Chapter 8) similarly finds an association of imported red wares and sites with oversized pit structures.

Finally, the exchange and movement of goods have also been used in interpretations of political organization and arguments for prehistoric social complexity. A large proportion of ceramics in Chaco Canyon during the Classic Bonito Phase were tempered with sanidine basalt from the Chuska area approximately 80 km, west of Chaco Canyon. “The co-occurrence of Chuska ceramics in Chaco Canyon and Chaco sites in the Chuska Valley suggests that there may have been some Chaco-based organization of, or control over, ceramic manufacture in the Chuska Valley” (Toff et al. 1980). Upham and others (Upham et al. 1981; Upham 1982) argue that certain relatively labor-intensive ceramic wares (determined according to the production step measure) were centrally produced and tend to be found only on larger sites, suggesting restricted access to the material and control by a managerial elite. They suggest that this ceramic exchange may have symbolized political alliances in the fourteenth and fifteenth centuries (Upham 1982: 157). However, at least for the Jeddito Alliance, evidence for centrally controlled production is questionable, since clay composition analysis shows that Jeddito Yellow Wares (in the Hopi Mesas area) were produced at several villages, and there is no evidence of centrally controlled resources within the villages (Bishop et al. 1988).

Artifacts are powerful evidence in studies of social integration and other topics. The studies in this volume demonstrate this power and also demonstrate the importance of interpreting the artifacts in context. Study of vessel form, exchange, and style are all closely linked, as is shown in the papers by Blinman, Hegmon and Plog. Furthermore, interpretations of artifacts and the architectural contexts where they are found are closely linked, as is shown most directly by Varien and Lightfoot and generally by all the papers in this volume.

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