The circulation of material goods plays a crucial role in the organization and evolution of social networks in preindustrial societies. In the American Southwest, the study of exchange networks, and particularly of ceramic exchange, has taken a central place in archaeological research that aims at reconstructing changing patterns of community interaction and sociopolitical organization in prehistoric Southwestern societies. This article examines recent models and methods for reconstructing exchange and presents criteria for defining material correlates of the diverse mechanisms of ceramic circulation present in the northern Southwest during the late Pueblo III and Pueblo IV periods (A.D. 1250–1450). Examples from ceramic research in the Grasshopper and Point of Pines regions of east-central Arizona illustrate the proposed criteria.

The reconstruction of ceramic exchange networks has been one of the central themes of theoretical and methodological discourse among contemporary archaeologists in the American Southwest. The issue of prehistoric ceramic exchange in the area was raised back in the 1930s, when Anna Shepard conducted a petrographic study of the ceramics from Pecos Pueblo. However, only recently have Southwestern archaeologists begun routinely to employ modern techniques of ceramic paste characterization to distinguish ceramics made in a site or region from those made elsewhere. This renewed interest in exchange stems from the increasing evidence that ceramic vessels circulated regularly among proximate as well as distant communities as early as A.D. 800 (Blinman and Wilson 1993; Hegmon, Hurst, and Allison 1995). The question that logically follows these findings is, How and why did ceramic vessels circulate across such a vast landscape? One of the most enduring views of ceramic circulation, particularly in the northern Southwest, is that prehistoric communities engaged in exchange to minimize the risks of a marginal environment. Although everyone agrees that the prehistoric environment, with its unpredictable cycles of drought, short frost-free seasons, and erosional settings, must have imposed great hardships on Southwestern populations, there is no consensus about how exchange networks articulated with community organization to average out risks in different times and at different places.

At least two models of the nature of exchange networks have been offered: namely, the evolution of tribal reciprocity (Braun and Plog 1982; Hantman and Plog 1982) and the establishment of elite alliances (Upham, Lightfoot, and Feinman 1981; Upham 1982; see also Mathien and McGuire 1986; Mathien 1993; Sebastian 1992). Each model has contrasting implications for under-
standing the nature of community interaction in the prehistoric Southwest. The former stresses the adoption of averaging mechanisms among egalitarian social groups, while the latter supports the formation of networks controlled by a few powerful individuals or groups who managed the flow of decorated ceramic vessels and other resources. Despite the different theoretical implications of these models (see Douglass [1990] for a detailed discussion of this topic), both suffer from a serious methodological weakness: the lack of adequate material correlates for identifying distributional patterns that unequivocally support either model. Therefore, a given pattern of nonlocal ceramic distribution can be interpreted as the product of either egalitarian or stratified exchange relationships, depending on the faith of the practitioner. As originally conceived, these models do not account for the variability observed in the ceramic record; cases in point are the largely unsuccessful focus on stylistic variability as a material correlate of interaction and exchange (see S. Plog 1980) and the application of the production step measure for characterizing labor investment in ceramic production for elite exchange (Feinman, Upham, and Lightfoot 1981).

The major problem hindering the development of correlates for exchange is the absence of alternative explanations for the distribution of nonlocal ceramics. Until recently, a tendency to label just about every piece of evidence for circulation as “exchange,” without detailed consideration of how and why nonlocal ceramics were introduced into a settlement, has characterized ceramic production and distribution studies. This tendency has delayed the search for evidence of different types of prehistoric transactions as well as of other mechanisms of circulation that likely coexisted and evolved hand in hand with the structure of community interaction. To resume the search for such evidence, I first evaluate the conceptual frameworks of existing anthropological models of exchange in light of current knowledge of the context of resource circulation. Second, I identify behavioral possibilities for circulation. Last, I suggest methods for isolating each of these possibilities. Examples from ceramic research on Pueblo III and Pueblo IV sites in the Grasshopper and Point of Pines regions of east-central Arizona illustrate these points.¹

THE CONTEXT OF PREHISTORIC EXCHANGE: ANTHROPOLOGICAL MODELS AND ARCHAEOLOGICAL INTERPRETATIONS

Economic anthropologists have developed two major “schools of thought” regarding the structure and organization of exchange: substantivism and formalism. The substantivist school stresses that exchange in traditional societies is an economic behavior imbedded in a broader social and political context, in contrast to modern Western societies where exchange articulates with a market economy (Dalton 1969; Polanyi 1957). Substantivists identify three forms of circulation of goods among non-Western societies: reciprocity, barter, and redistribution. Reciprocity, or gift exchange, and barter, or nonmonetary market exchange, both are symmetrical in that they tie exchange partners into one-to-one obligations; redistribution, on the other hand, is viewed as a centralized form of circulation charac-
MATERIAL CORRELATES FOR CERAMIC CIRCULATION


In this view, the contexts in which reciprocity and barter take place differ in the nature of the relationship between the partners among whom goods circulate: reciprocity is generally embedded in social, political, and ceremonial obligations among closely interacting individuals or groups of individuals, whereas barter occurs between partners who share economic interests but who are otherwise unrelated. Reciprocity is usually viewed as intracommunity exchange; barter transcends community boundaries (cf. Humphrey and Hugh-Jones 1992:7). In contrast, centralized exchange often requires managerial organization rather than equal partnership. Different forms of exchange, therefore, are expected in different kinds of social organizations—reciprocity characterizes segmentary societies, whereas redistribution appears in chiefdoms and states (Sahlins 1965, 1968).

The formalist school is concerned with the outcome of rational decision making among available choices such as food resources and settlement locations. In reference to exchange, this school emphasizes efficiency and maximization, all of which are criteria applied cross-culturally to Western and non-Western societies alike (Cook 1968; Schneider 1974). Although the anthropological debate between formalists and substantivists makes these schools appear to be mutually exclusive theoretical positions—the contextual view versus the world view (Cook 1968:209)—in practice these approaches are no more than two different types of analysis: one of output and performance, the other of the social context of exchange (Hodder 1982:200). Not surprisingly, therefore, elements of both schools have appeared in archaeological studies of exchange.

Many archaeologists have used Sahlins’s evolutionary framework to explain changes in prehistoric economic and sociopolitical structures through the identification of different forms of exchange. This application has met with great success in the Old World and Mesoamerica, where sedentary farming communities exhibiting incipient to full-time specialization and with restricted access to resources engaged in various forms of exchange (see, e.g., Pires-Ferreira and Flannery 1976; Renfrew 1972, 1975; see also articles in Brumfiel and Earle 1987 and in Sabloff and Lamberg-Karlovsky 1975). In these areas, symmetrical exchange generally has been viewed as a transitional form that eventually evolved into centralized exchange, or redistribution, as a result of the development of sociopolitical complexity (Renfrew 1975:10; Earle 1977:213). Spatial models, such as world systems (Wallerstein 1974) and peer polity interaction (articles in Renfrew and Cherry 1986), have also addressed the social context of exchange and have focused, respectively, on asymmetrical and symmetrical economic and political relationships among groups. The world systems model has been used in the American Southwest to explain the relationships between Mesoamerica and the Southwest (e.g., Mathien and McGuire 1986; Weigand, Harbottle, and Sayre 1977).

In contrast to the substantivist approach to prehistoric exchange, formalist-like concepts, such as efficiency, risk and cost minimization, and maximization of returns, have been used most often for reconstructing patterns of resource exploitation, artifact production, and distribution in hunter-gatherer and horticul-
tural societies (see, e.g., Ammerman and Andrefsky 1982; Ericson 1981, 1982). This type of analysis is more closely associated with ecological rather than evolutionary models and places great emphasis on the adaptive and organizational functions of exchange (see, e.g., Yengoyan 1972). Formalist analysis has found a friendly home in Southwestern archaeology, where issues of environmental and ecological marginality are at the core of many explanations of prehistoric organization and change (Cordell and Plog 1979). Here, concepts derived from the formalist school have been applied jointly to reconstructions of the social context of exchange; for example, in their model of the evolution of tribal social networks in North America, Braun and Plog (1982) view reciprocity as a mechanism of risk minimization. Similarly, models that attempt to demonstrate the existence of elite or asymmetrical exchange during the late prehistoric period in the American Southwest identify the need to manage scarce resources and to maximize economic productivity as a moving force behind the strategies of prehistoric Southwestern elites (Lightfoot 1984; Upham 1982).

In the last ten years, a shift in emphasis from regional characterizations to broad syntheses of the development of exchange networks in the American Southwest, and from ecological to social, political, and ritual explanations of exchange (S. Plog 1993:288), has brought into focus many conceptual weaknesses of past models that remain unsolved. While available explanations have included considerations of specific context as well as outcome and performance, many of them have viewed different forms of exchange as mutually exclusive. In addition, current explanations have not contemplated the fact that goods can circulate by means of mechanisms other than exchange. In the specific case of ceramic exchange, upon which so many reconstructions of prehistoric behavior rely, it is crucial that we demonstrate whether ceramic vessels circulated as containers or as commodities. This distinction has tremendous implications for reconstructing the social context of exchange as well as the economic impact of ceramic production and distribution in prehistoric Southwestern societies. I would argue that archaeologists tend to assume, implicitly or explicitly, that ceramics circulated as commodities, that is, as objects having exchange value in and of themselves (Appadurai 1986:3). While justified in the context of rising states, for which archaeological evidence regarding the production, distribution, and consumption of commodities abounds, this assumption is unwarranted in the northern Southwest. Current perspectives on prehistoric economic strategies and sociopolitical organization in the area indicate that existing models and methods for reconstructing exchange require assumptions that are inadequate for interpreting variability in the ceramic record.

RECONSTRUCTING THE CONTEXT OF PREHISTORIC EXCHANGE: MOBILITY, TERRITORIALITY, AND ACCESS

Regardless of the area where exchange networks have been reconstructed and of the degree of sociopolitical complexity developed therein, a common assumption is that the communities engaged in such networks were sedentary. By sedentism, I refer to the continuous, multigenerational occupation of a settle-
ment. It has become increasingly clear that in many regions of the northern Southwest, where people had to contend with agricultural marginality and environmental unpredictability, communities apparently resolved their struggles by practicing a mixed subsistence economy and mobility; both seasonal mobility within a given territory (Powell 1983; Preucel 1990; Toll 1985) and short-term sedentism followed by migration have been documented archaeologically (Anyon and Ferguson 1984; Dean 1970; Nelson and LeBlanc 1986; Toll 1985) and in Pueblo oral traditions (Fewkes 1900). Strategic mobility continued even after the Spanish conquest, particularly during times of drought-induced famine and epidemics.

Another common assumption is that sedentary communities engaged in exchange because they had restricted access to territories and resources; networks mediated between two or more groups of people and their "exchangeable" resources. In contrast, mobility and short-term sedentism, coupled with relative dependence on wild resources, required that populations have access to a large territory beyond their immediate farming lands (Lekson 1992:29). Direct access to resources may have been obtained through joint use of territories by different groups of people (Hunter-Anderson 1979; Reid 1989; Reid et al. 1996) or through the establishment of social networks with communities that controlled distant territories and resources (Anyon and Ferguson 1984). It is difficult to conceive of the enormity of the territory accessed by a single Southwestern community, even a sedentary one (see, for example, Ferguson and Hart 1985; Zedeño 1997b).

In a context where mobility, joint use of territories, and direct access likely were generalized strategies for resource exploitation, networks established among proximate as well as distant communities, particularly those through which ceramic materials likely circulated, appear to have been largely social and political (S. Plog 1993). Archaeological models that conceive of exchange as a "buffering" mechanism tend to overemphasize the economic primacy of networks; although interaction networks surely had a subsistence function, their noneconomic function was equally critical for the survival of a community. Alliances may have been established to retain political autonomy and sovereignty in situations where territorial boundaries were not demarcated, to achieve cooperation and obtain refuge in times of stress (Dalton 1977:208), to negotiate rights of direct access, and to create obligations between resource holders and resource users (Anyon and Ferguson 1984:15). These networks likely existed for extended periods of time, as indicated in the development of pan-regional means of ritual integration (Adams 1991b; Crown 1994) and in the aggregation of ethnically diverse people in large pueblos (Haury 1958; Whittlesey and Reid 1982; Reid 1989).

BEHAVIORAL MECHANISMS OF CERAMIC CIRCULATION

What transpires from this portrayal of the behavioral context of the circulation of resources is that, first, a large number of ceramic containers may have been transported by the people themselves, as they moved from one residence to another; it appears that only in situations of extreme stress, ritual abandonment, or long-distance migrations did people leave their household belongings behind when they moved
(Cameron 1991; Montgomery 1992). Therefore, much of the variability present in the systemic inventory of a household reflects its past history of residence.

Second, territoriality and access probably played a critical role in pottery circulation, as both strategies likely required the establishment of social and political relationships with communities occupying distant territories where desired resources were located. Mechanisms of intercommunity integration through participation in public ceremonies are well known from the historic and ethnographic records; pottery traditionally was part of ceremonial offerings, gifts, and bridewealth and also circulated during feasts, public ceremonies, and gambling episodes (Beaglehole 1937; Ellis 1966; Parsons 1929; see Toll 1985).

And third, in contexts where politics and ceremonialism were the focus of communal activities, exchange as a purely economic transaction occurred incidentally (see Ford 1972). Trading fairs or open markets for barter were most probably incorporated into Pueblo gatherings under the influence of Spanish rule (Ford 1983; Kessell 1979), although some form of barter was probably common in late prehistory—for example, the exchange of cotton produced at Homol’ovi for Hopi yellow ware (Adams 1991a). In early historic times, Spanish occupation and increasing raiding threats from the newly horse-mounted Athapaskans seem to have contributed significantly to limiting the movement of people over long distances. Consequently, Pueblo communities intensified trade, for example, with Plains Indians (Spielmann 1991) and the Ute (Ford 1972), once direct access to distant resources had been limited. Even so, intertribal mobility during droughts, epidemics, and political upheaval continued in historic times (Adams 1989:86; Whiteley 1988:38). Thus, we can assert with some confidence that prehistoric Puebloan populations engaged in many forms of interaction to strengthen their subsistence economies, as well as their social and political ties. These practices derived directly from the specific structure of Southwestern community organization and from the relationship between people and the landscape. Many such forms of interaction are evident to a greater or lesser extent in the ceramic record.

THE MATERIAL CORRELATES OF CERAMICS CIRCULATION

The most generalized method for reconstructing exchange networks has been to study the patterns of distribution of nonlocal artifacts over relatively broad areas (e.g., Douglass 1990; Findlow and Bolognese 1982; McGuire and Downum 1982; S. Plog 1980; Upham 1982). Mathematical models, such as Renfrew’s (1975, 1977) fall-off curves, have been used to plot the distribution of artifacts presumed to be exchanged and to identify the form of exchange. Depending on the quality of the data, production and consumption loci are tentatively identified. Application of these methods is, for the most part, an exercise in deduction, wherein attributes arbitrarily chosen as indicators of prehistoric exchange behavior are made to fit into abstract mathematical variables. These variables are in turn used to predict the quantity and distribution of “exchanged” artifacts that should be found in a site and region and to identify the form of exchange that they represent (Hodder 1982:202).
A critical flaw of predicting exchange patterns from statistical modeling of artifact distribution is the conflation of the archaeological and systemic contexts; modeling cannot account for the formation processes that brought artifacts to the place where they were found. Fall-off curves, regression, factor analysis, and other statistics used for reconstructing the volume, directionality, and size of exchange networks have, until recently, constituted the only methodological link between the archaeological record and theoretical explanations (Earle 1982:7). But as Blinman and Wilson (1993:67) point out, nonlocal artifact distributions only suggest that artifacts traveled from a point of origin, or provenance, to a point of recovery, or provenience, but do not tell us just how they traveled or whether circulation patterns changed through time. Therefore, behavioral inferences that go beyond the identification of nonlocal artifacts must be based on observations made on specific archaeological contexts and under strict temporal and spatial control.

Although the need to study the form and function of exchange from a regional perspective may seem obvious to the point of triviality, in practice the behaviors involved in the manufacture, distribution, use, and discard of pottery and associated artifacts cannot be inferred from distributional patterns alone; such inferences require excavation. As Fred Plog (1977:130) noted, the reconstruction of networks from regional distributions of nonlocal materials requires, among other things, that contemporaneity of production and consumption loci be demonstrated. Broad regional studies often use survey materials wherever excavated assemblages are lacking; use of these materials poses a major problem for reconstructing networks because they can only be dated through ceramic types whose time span is usually longer than the average occupation of a site. Without establishing contemporaneity, one runs the obvious risk of interpreting sequential movement of pots to be the result of synchronic, interacting networks and of overestimating the size of the population involved in a network (Gregory 1975).

An alternative method for developing material correlates is to trace the life history of artifacts, from production to discard (Schiffer 1992:9). Artifact life histories provide the opportunity to distinguish synchronic from sequential artifact circulation and to identify temporal variation in circulation mechanisms. Even though they require the use of excavated, well-dated assemblages, artifact life histories focus on the production, use, and discard of material remains rather than on the hypothetical nature of transactions and their equally hypothetical material patterning. Therefore, implications that arise from life histories are broadly comparable across different assemblages. The rationale behind the study of pottery life history is that every pot during its lifetime had the potential of being circulated as a container, offering, gift, or commodity. There is a continuum from pottery manufactured for local use to pottery manufactured for exchange, in which the critical variable is a pot's potential for "exchangeability" (past, present, or future). In situations where pots are generally manufactured for local use, the potential for exchangeability is not inherent to the artifact, although such an artifact may be exchanged at any point in
time during its life history. Conversely, in situations where pottery is manufactured for exchange, the potential for exchangeability becomes the relevant feature of a pot (Appadurai 1986:13). I shall call these exchangeable pots "commodities."

Tracing pottery life history is a useful method for distinguishing pots that entered systemic assemblages through the movement of people from those that were obtained through other means. A key element of that distinction is that the introduction of nonlocal pottery through the movement of people is, as Haury (1958) demonstrated for the Kayenta immigration to Point of Pines, Arizona, a one-time affair; pottery that came along with settlers may not be reproduced at the new location unless it is manufactured with local raw materials, and, equally important, it tends to enter discard contexts such as surface debris and room fill of early-abandoned rooms early in the occupation of a site. In sites occupied for short periods of time or with very few construction phases, nonlocal pottery recovered from the surface or room fill that is absent or is poorly represented in room floors as primary de facto refuse has a high probability of having been brought in by immigrants. Further, ceramics brought by immigrants are not limited to a single ware or ceramic class but usually represent household assemblages. This indicator is evident even in large and complex sites such as Point of Pines (Zedeño 1997a).

Successive migrations that produced settlement growth in spurts, on the other hand, may have contributed to the generation of ceramic assemblages that were periodically enriched with imported ceramics, giving the illusion of exchange. In these situations, local reproduction of imported ceramics should be carefully monitored, focusing particularly on the use of "foreign" techniques. The production of Roosevelt Red Ware or Salado polychromes, for example, clearly indicates use of tempering, painting, and firing techniques that had not been present in local mountain assemblages of east-central Arizona until immigration and aggregation occurred (Crown 1994; Zedeño 1994, 1995). Comparisons of ceramics found in different discard contexts, such as surface, fill, and room floors (Montgomery and Reid 1990; Montgomery 1992), serves not only for timing the appearance and demise of types and wares within very short spans but also for building inferences about the mechanisms of the circulation of pots made for local use and/or exchange.

Differential distribution of local and nonlocal pots within a site may provide some insights as well, although such a distribution may not be observable in small sites. At Point of Pines, for example, the spatial distribution of incoming Tsegi Orange Ware was mostly restricted to the immigrants' households (Haury 1958). However, the ethnographic record provides numerous examples indicating that intracommunity circulation of ceramics, particularly as food containers (Beaglehole 1937; Parsons 1929), was pervasive in Pueblo societies; such circulation would be difficult to infer archaeologically, because it would have served to even out differential distributions of local and nonlocal pots within a settlement. Another gray area in the identification of pots transported by people involves seasonal and logistic mobility, especially if such mobility entails short-distance moves (Preucel 1990). However, one may tentatively propose that pots moved short distances, as, for example, from villages to seasonal homesteads, will reflect the variability of utilitarian contain-
ers found in a household, and, depending on the use-life of the pot, some may eventually return to the village. If replaced during short-distance seasonal moves, pots may possess at least some technological and/or mineralogical similarities with the village assemblages. As distance increases, however, the probability of people obtaining pots from other groups whose resources and territories are being used also increases.

Long-distance seasonal moves involving either resource exploitation or intercommunity gatherings may serve to bring nonlocal pots home at relatively regular intervals. These nonlocal pots would likely be represented in the ceramic record in consistent percentages throughout the occupation of a site, particularly if networks were maintained with the same people for some time. However, the kinds of pots obtained in social and ceremonial contexts may differ from those obtained routinely from communities located in nearby or joint-use resource areas. For example, one would expect greater variability in nonlocal pots obtained from intercommunity gatherings, where people from different communities could have brought all kinds of pots for gift exchange and offerings (see Toll 1985:Chapter 6). It is also likely that pots obtained through ceremonial or social reciprocity would be bowls, which are commonly used as ceremonial food containers (Beaglehole 1937; White 1942) and are easier to transport over long distances than are jars. Circulation of food containers may have been prevalent among small, relatively mobile communities such as those dating to the late Pueblo III period in the Grasshopper region. At Chodistaas, rare St. Johns Polychrome bowls, Cibola White Ware bowls, and some nonlocal painted corrugated bowls could have been obtained through this type of reciprocal exchange. Conversely, pots obtained from regular long-distance relations may include all vessel forms, particularly if such vessels are of real or perceived quality.

Cibola White Ware illustrates a complex case of circulation. As recent studies in the San Juan Basin and Upper Puerco region show (Zedefio et al. 1993), Cibola vessels were made and used in almost every eastern Anasazi settlement north of the Mogollon Rim. This ware was routinely circulated among plateau communities and was also introduced into the Mogollon Mountains, being found at Grasshopper, Q Ranch (Tuggle, Kintigh, and Reid 1982), and Point of Pines (Zedeño 1997a), and into the Tonto Basin (Lindauer 1995). Its presence in Pueblo II and Pueblo III period assemblages may well be the result both of people moving in and out of the mountains on a regular basis and of exchange. Cibola White Ware has two performance characteristics—light weight and strength—that are consistent with evidence of circulation and transport (Neupert 1994; Reid et al 1992). The compositional heterogeneity of Cibola White Ware in site assemblages at Chodistaas, Turkey Creek, and Point of Pines indicates that these nonlocal pots were obtained from a number of sources and were seldom reproduced locally by mountain potters.

The circulation of pots between geographically close, contemporaneous communities raises an interesting question: Why would people obtain nonlocal pots similar to the ones they manufactured themselves? The circulation of corrugated jars between late Pueblo III communities on the Grasshopper Plateau and those located in the Cibecue Valley, to the east, illustrates a case in which undecorated vessels were moved in both directions within ten miles from their production loci
These vessels are technologically distinct but appear in similar use contexts. In ethnographic situations, strictly symmetrical exchange occurs whenever social relations among closely interacting individuals are threatened and need to be reinforced through gift exchange or when new social relations are being established, as occurs with marriage (Beaglehole 1937). Additional interpretations for the movement of pots over short distances may be transportation of resources from the uplands to the valley, and vice versa, and circulation during intercommunity gatherings. These mechanisms are not exclusive; they could have been acting simultaneously throughout the occupation of both regions.

The last circulation mechanism discussed here involves commodity pots. Commodities generally are produced to meet a demand, and, therefore, they should achieve the minimal values of specific performance characteristics (Schiffer and Skibo 1987)—whether techno-functional, social, symbolic, or aesthetic—needed to satisfy potential consumers (Stark 1993). Commodity production may imply some level of craft specialization, at least at the village level, and commodity pots may possess attributes, such as nestability, to facilitate transportation of large numbers (Whittlesey 1974; Mills and Crown 1995). The production of Chuska wares for consumption in Chaco Canyon during the Pueblo II period (Toll 1985; Shepard 1954; Warren 1967) and of polychrome wares during the Pueblo IV period (Adams 1991a; Bishop et al. 1988; Crown 1994; Triadan 1997) fits well within the commodity definition.

A second characteristic of commodities is that producers do not necessarily share the functional requirements of consumers: a ware that is ubiquitous and mundane for producers may have very specific, restricted, or highly valued uses for consumers. One example is the postulated ritual function of Pinedale and Fourmile style polychromes; although produced in numerous loci, used in different contexts, and widely exchanged (Crown 1994; Triadan 1997), these polychromes were associated with ritual practices in a restricted number of settlements (Adams 1991b). A second example is the abundant consumption of Hopi yellow wares at Homol’ovi, where fuel scarcity rendered pottery manufacture uneconomical (Adams 1991a). Thus, commodity ceramics may be identified both from the production and the consumption ends of artifact life history. In addition, modes of disposal of commodities, such as in kiva fill, burials, room floors, or trash mounds, may be used as another means of identifying their role in producer and in consumer contexts.

**SUMMARY**

The arguments outlined above are an attempt to explore the nature of prehistoric exchange networks in the northern Southwest as reflected in the ceramic record. Intercommunity networks entailed a wide range of activities and transactions involving ceramic containers, among which exchange was only one. Both the archaeological and historic records suggest that ceramics circulated through economic, social, and ritual transactions, as well as through...
population movement. Also, different forms of exchange, such as barter and long-distance trade, may have expanded in late prehistory as a result of shifts in population density, village size, and sociopolitical integration. It is evident that during the fourteenth and fifteenth centuries, networks underwent changes that are unclear in the historic record because of the drastic influence of Europeans. We have yet to find a parsimonious explanation for the nature of these changes.

Four points have been discussed here. First, existing models of exchange networks lack adequate material correlates for interpreting distributions of nonlocal ceramics. Second, the development of correlates entails a reevaluation of the broader context of resource circulation according to the subsistence strategies and types of community organization that characterized prehistoric Puebloan populations. Third, to develop correlates for alternative mechanisms of circulation, we need to examine not only the regional distribution of nonlocal ceramics but also the specific contexts in which they are recovered, as well as the characteristics of the vessels themselves. Last, the tracing of artifact life histories is a method suggested here for discerning mechanisms of circulation.

An understanding of the evolution of exchange networks throughout the prehistory of the northern Southwest can be achieved to an extent through the study of ceramic circulation. However, deductive, overarching frameworks used to explain the archaeological distribution of ceramics are not adequately tailored for this task. Historical contingency and contextual variability must be incorporated into research that targets the role of material culture exchange in prehistoric societies. The gaps in our knowledge will not close unless we undertake careful study of specific archaeological contexts as well as of the historic and ethnographic records to develop correlates for ceramic circulation. Artifact trajectories should be retraced so that patterns in the material record, particularly those produced by ceramic circulation through different types of networks, may be brought to light.

NOTE

1. I wish to acknowledge P. Lyons, B. Mills, J.J. Reid, M.B. Schiffer, W. Walker, and the Laboratory of Traditional technology crew for comments on earlier drafts of this paper. Special thanks go to A. Simon and three anonymous reviewers for their support and excellent suggestions.

REFERENCES CITED


MATERIAL CORRELATES FOR CERAMIC CIRCULATION


