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Tizon Brown Ware and the Problems Raised by Paddle-and-Anvil Pottery in the Mojave Desert

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ARCHAEOLOGISTS working in southern California have yet to formalize a suitable taxonomic structure for the varieties of prehistoric pottery found there. In dealing with paddle-and-anvil-thinned ceramics, archaeologists generally recognize two major kinds of pottery, Lower Colorado Buff Ware and Tizon Brown Ware. In particular localities, this partitioning has proven useful. Tizon Brown Ware is firmly established as an inclusive category for pottery from the uplands of San Diego County. Shackley (1984: 122), for instance, identified it as "constructed from Peninsular Range residual clays, . . . an extremely generalized form." When Tizon Brown Ware was formally defined by Dobyns and Euler (1958), however, it was recognized only in western Arizona. If we expand the formal use of this taxon to include the bulk of paddle-and-anvil pottery produced in the Mojave Desert, we fill the area that lies between western Arizona and the Peninsular Ranges of southern California. What may have been conceived of, or treated as, two Tizon Brown Wares, become one. Current practice points in this direction, and a unified concept of Tizon Brown Ware has simplicity to recommend it. But it also includes a pitfall for California archaeologists.

The use of Tizon Brown Ware as a taxon for the pottery of the Peninsular Ranges west of the Colorado Desert was not part of Malcolm Rogers' 1945 scheme, for he thought of all southern California paddle-and-anvil pottery as "Yuman," and sought to identify types within the large Yuman area to char-

acterize the variation that he saw. Earlier, Tizon Brown Ware had been defined (Colton 1939:8) to include paddle-and-anvil pottery from both western Arizona and the Mojave Desert. Colton (1939:8) also noted that it might "extend south as far as the Gulf of California." Neither Rogers nor Colton made the large-scale distinction that is codified in the Lower Colorado Buff Ware/ Tizon Brown Ware dichotomy that subsequently developed.

The differentiation of these two wares emerged in 1958 when the Museum of Northern Arizona issued Ceramic Series No. 3 D, *Pottery Types of the Southwest: Wares 14, 15, 16, 17 and 18* (Colton 1958). By then, Schroeder's (1951) survey of the Lower Colorado River led him to consult Malcolm Rogers' collections at the Museum of Man in San Diego. Schroeder (1958) grouped types from along the river as Lower Colorado Buff Ware, and included a Mojave Desert type, Pyramid Gray, in that ware. Tizon Brown Ware (Dobyns and Euler 1958) was restricted to western Arizona south and east of the Colorado River, and was associated with an ethno-linguistic group, the Upland Yumans. In general, Tizon Brown Ware was characterized as tempered with granitic materials, made by paddle-and-anvil, and tending to be darker in color than Lower Colorado Buff Ware. In addition to contrasting in color with Lower Colorado Buff Ware, there was perhaps less elaboration of rim and vessel forms in Tizon Brown Ware than in Lower Colorado Buff Ware.

The root of our present difficulties stems

from the leapfrogging of Tizon Brown Ware from western Arizona to the Peninsular Ranges and western fringe of the Colorado Desert in California (Fig. 1). This happened in the 1950s, when Harner (1957) assigned pottery from the west end of the San Geronio-Big María trail to Tizon Brown Ware, using Colton's (1939) description of the ware. A year later, he attached a pseudo-ethnic name, "Upland Patayan," to the makers of Tizon Brown Ware, although he observed that it "was made by the Shoshonean Cahuilla, Cupeño, and Luiseño as well as by upland Yuman tribes" (Harner 1958:93). Apparently he was not disturbed by the geographic discontinuity within the distribution of Tizon Brown Ware, for he stated (1958:93) that it was made "in southern California, Lower California, and northwestern Arizona," without further comment. The transplanting of Tizon Brown Ware to far southern California drew further support from Euler (1959). Euler explicitly based the nomenclature on the similarity of materials in the two Tizon Brown Wares; he included no observations on rim form or other stylistic characteristics. As Euler interpreted Tizon Brown Ware, it would include any granitic-tempered paddle-and-anvil pottery made of nonalluvial clays. He made no cultural-historical inferences between the Tizon Brown Wares of the distant areas.

At this point there were two large patches of Tizon Brown Ware, one in western Arizona and one in far southwestern California (Fig. 1). They were discontinuous in space, and on the whole have been treated as distinct cultural-historic entities. If, however, we classify paddle-and-anvil pottery produced in the Mojave Desert as Tizon Brown Ware, we build a distribution for this ware that fills the gap between the two established "Tizon Brown Wares." This creates a great continuous arc of pottery



Fig. 1. The two Tizon Brown Wares, circa 1958.

stretching from western Arizona west across the Mojave Desert, and down into the Peninsular Ranges. If we draw out and make explicit the implications of a unified Tizon Brown Ware contrasted with Lower Colorado Buff Ware, we create a geographic model that looks like Figure 2.

In large-scale terms, we can think of paddle-and-anvil pottery in the California deserts as first established along the Lower Colorado River, where it has developmental relationships with Hohokam pottery of south-central Arizona. Schroeder (1979:103) placed the Southwestern origin of paddle-and-anvil pottery along the middle Gila River. He treated the eventual northern and western

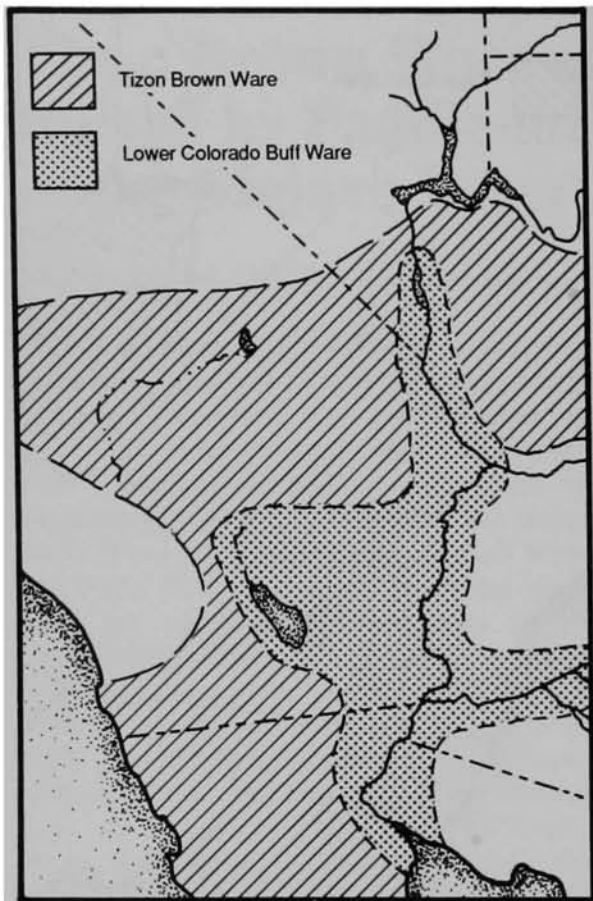


Fig. 2. Approximate production zones of Lower Colorado Buff Ware and unified Tizon Brown Ware.

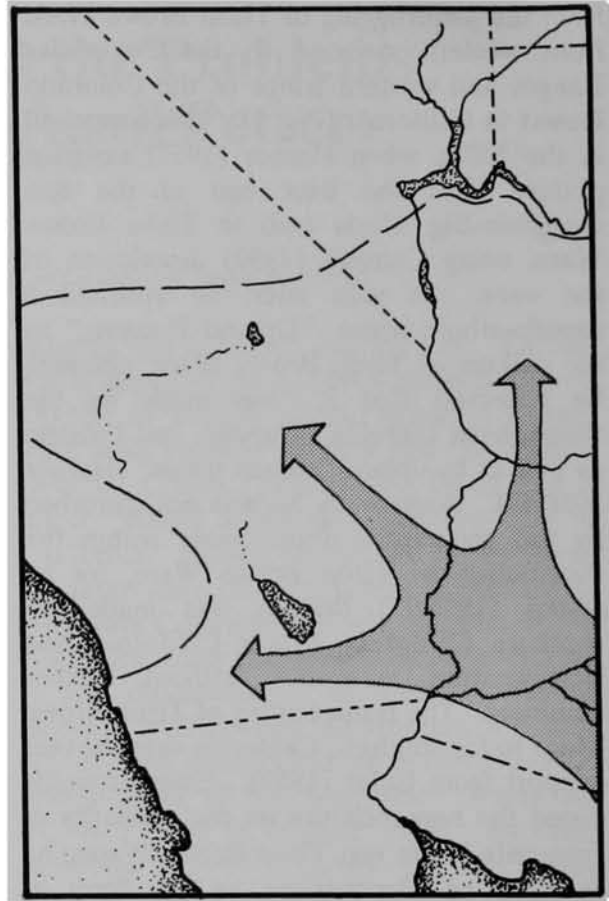


Fig. 3. Hypothetical spread of paddle-and-anvil pottery. Heavy dashed line shows approximate maximum extent of production zone.

distribution of paddle-and-anvil pottery as the result of diffusion.

We know, in fact, little of the real history of southern California pottery, but traditional age-area constructs would lead us to regard the eventual range of paddle-and-anvil pottery as a spread of ceramic production from the Lower Colorado River Valley into adjacent areas. Although we have much to learn, nothing in the archaeological record so far shows that such a model is wrong. Figure 2, then, may be a map of the distribution of two pottery wares, but it does not reflect cultural-historical entities. If we diagram what we think is the course

of spread of paddle-and-anvil pottery in southern California, it would look like Figure 3, which indicates a degree of independence in the histories of pottery from the three areas with brown paddle-and-anvil pottery.

Keeping such a radial model of relationships in mind, we can think of the overall distribution of paddle-and-anvil pottery in the California desert as the result of the spread of pottery-making into upland regions where the available clays were very different from those used along the Lower Colorado River and the adjacent lacustrine area. In the Colorado Desert, people were able to produce the relatively light-colored pottery

that we call Lower Colorado Buff Ware. Materials suitable for this kind of pottery are not found in upland locations, however, and, simply stated, pottery produced in these areas is not going to fire to light colors.

Achieving light-colored pottery generally requires clays of low iron content. Clays produced by the weathering of granitic rocks have substantial iron content resulting from the disintegration of dark accessory minerals that accompany their quartz and feldspars. Unless the iron is removed in the natural cycle by leaching, a negligible process in arid regions, or is separated from clays in the process of transportation prior to sedimentation, the clay will not generally fire to the light colors that we conceptualize as "buff." Chemicals that may be found in the clays, or are added, may modify the reactions resulting in the development of color in fired clay. Weisman (1988:6), using data from thin sections and from attempts to replicate Hohokam buffware, found that "the color results from a chemical reaction between salt and calcium carbonate during firing. Under certain conditions, normally red-firing clays can be manipulated to fire buff."

It seems evident that the combination of raw materials and technology essential to producing light-colored pottery was not available in the uplands north and west of the Colorado Desert. We perceive the resulting upland pottery as "brown," or perhaps more realistically, "darker," sometimes browner and sometimes grayer.

In addition, differences in the relative cleanness of clays of the two regions may contribute to the dichotomy between "buff" and "brown." Euler (1959:41) pointed out that "Pottery of riverine and desert Yumans, made from alluvial clays, is demonstrably different from [Tizon Brown Ware from Arizona and from the Luiseño and Diegueño areas of California]." Waters (1982a) consis-

tently described the clays of the Lower Colorado Buff Ware types as "sedimentary," and either free of inclusions, or having few, tiny, well-rounded ones. Clays of this kind are deposited in very still-water environments after considerable long-distance transport and sorting in slow-moving waters. Microenvironments that collect such clays probably are rare to absent in the Mojave Desert.

So there is, in fact, a buff-brown dichotomy, or a light-dark dichotomy, within the paddle-and-anvil pottery of southern California, probably associated with a less-grainy/more grainy differentiation in the clays. This does not mean that separating Lower Colorado Buff Ware from the browner paddle-and-anvil pottery produced in the Mojave Desert is easy. There probably is more overlap than exclusiveness in the color ranges of the two wares. Relative siltiness of clays is obscured in heavily-tempered sherds when observed at low power under the binocular microscope. A combination of light color and clean clay should mark sherds of Lower Colorado Buff Ware that can be identified as intrusive in the Mojave Desert. Further, some types of Lower Colorado Buff Ware (Schroeder 1958; Waters 1982a) lack temper, or have inclusions and tempers that are not the granitic materials of Tizon Brown Ware, and point to locales of material procurement outside the Mojave Desert. These, too, can be distinguished from paddle-and-anvil pottery produced in the Mojave Desert. With careful analysis of materials, we can probably distinguish some, but not all, of the Lower Colorado Buff Ware that crops up in Mojave Desert assemblages.

It is this buff-brown dichotomy that we are in the process of codifying as Tizon Brown Ware/Lower Colorado Buff Ware. This distinction is found in the Mojave Desert, just as it is in southwestern Cali-

foria. The brown paddle-and-anvil pottery from the Mojave Desert resembles, in its materials and manner of thinning, brown paddle-and-anvil pottery from adjacent areas to the west and south. If we group all these as Tizon Brown Ware, what are the problems and implications?

If we are clear about what we mean when we call Tizon Brown Ware a *ware*, we should create no problem. However, wares mean different things to different archaeologists, and in different regions. Tizon Brown Ware historically is, and should be, conceived as a ware of the kind defined by Wheat et al. (1958). They said:

A "ware" is a large grouping of pottery types which has little temporal or spatial implication, but consists of stylistically varied types that are similar technologically and in method of manufacture [Wheat et al. 1958:34-35].

They are explicit in deriving this definition of ware from Colton and Hargrave's (1937) early work in the Southwest. When Euler (1959) applied the concept of Tizon Brown Ware to some pottery from the Anza-Borrego Desert, he used the concept of a ware in the same, traditional, Southwestern sense; shared materials and method of production. Like Harner, he made no cultural-historical inferences between what were then two separate patches of Tizon Brown Ware, one in northwestern Arizona, and one in far southwestern California.

Unifying pottery from this extensive area into a single ware creates problems, however, when archaeologists try to use that ware as a classification that carries information about space or time. In an area with an intractable prehistoric record like the southern California deserts, archaeologists do not always resist such a temptation.

Wallace (1964), for example, divided pottery from Joshua Tree National Monument into two wares, Lower Colorado Buff Ware and Tizon Brown Ware. He rather ex-

plicitly treated Tizon Brown Ware as an historical entity, observing that its earliest appearance is about A. D. 700, and that "The ware has a wide distribution in the Colorado and Southern Mohave Deserts of California where, presumably, its first manufacture and use occurred somewhat later than in Arizona" (Wallace 1964:94). In the absence of an available set of types in which the Tizon Brown Ware from Joshua Tree could be placed, Wallace used Tizon Brown Ware as though it were a type. In fact, as his discussion continued, he talked about Lower Colorado Buff and Tizon Brown, dropping "Ware" from their proper names, further blurring the conceptual difference between wares and types.

More recently, Payen was misled by a unitary conception of Tizon Brown Ware. In the *Historical Dictionary of North American Archaeology* (Jelks and Jelks 1988:489), he defined Tizon Brown Ware as:

a type of plain brown pottery made by the paddle-and-anvil technique; a characteristic trait of the late prehistoric-protohistoric period from western Arizona and the lower Colorado River Valley not later than A.D. 800, then it diffused westward across the California deserts.

Payen said Tizon Brown Ware is a type, and treated it as a type.

In work that I have completed on ceramics from Fort Irwin (Lyneis 1988a, 1988b, 1988c), I have yet to place the paddle-and-anvil pottery in a formal classification, in part because of my reservations regarding what Tizon Brown Ware means to archaeologists, and in part because of the practical difficulties of separating the sherds into two distinct groups that I might call Lower Colorado Buff Ware and Tizon Brown Ware.

The Far Western Anthropological Research Group, Inc., project is accumulating considerable independent information on the dating of ceramics at Fort Irwin. McGuire and Hall (1988:81-88) summarized the chro-

nometric associations from sites in Tiefert Basin. They pointed out (1988:86) that "Potentially associable radiocarbon determinations and other time-sensitive artifact forms primarily prescribe a ca. post-650 B.P. age." In trying to make use of my report on the ceramics from Tiefert Basin (Lyneis 1988b) to help generate more general chronometric information, McGuire and Hall (1988:85) observed:

Although not recognized by Lyneis in her analysis, it is possible that some of the brownware ceramics . . . consist of Tizon Brown. Described first by Colton and Hargrave (1937), in northwestern Arizona this ware is thought to appear ca. 1250 B. P. (Dobyns and Euler 1958). J. T. Davis (1962) gave it a maximum age of ca. 1150 B.P. in the Providence Mountains east-southeast of Tiefert Basin. Stratigraphic relationships between Tizon Brown and Lower Colorado Buff sherds at Indian Hill rockshelter in the southern Colorado Desert suggest that the buffware was introduced later (Wallace and Taylor 1960; Warren 1984). . . .

Like Wallace and Payen, McGuire and Hall seemed to treat Tizon Brown Ware as a unitary entity with temporal and spatial implications, as though it were developed first in Arizona, and spread westward. In fact, it was *identified* first in Arizona, and the *name* was transplanted to far southern California, from where it subsequently diffused into the Mojave Desert. McGuire and Hall also dropped "Ware" from the formal names of the pottery, as Wallace did, continuing a muddy conceptual structure that does not clearly distinguish wares from types. The practice tempts archaeologists to use a ware as though it were a type. This is the demon hiding in Tizon Brown Ware.

We can exorcise this bugaboo in one of several ways. We might define a new ware, Mojave Brown Ware, to include dark paddle-and-anvil-thinned pottery found, and presumably produced, in the Mojave Desert. This would insert a wedge between the "two"

Tizon Brown Wares, one found in Arizona and one found in Peninsular California. If such a definition were accepted, it would halt the practice of treating Tizon Brown Ware as a unitary historical phenomenon, and give a shape to patterns on a distribution map that resembles the assumed general history of the spread of pottery. It might encourage the investigation of the spread of pottery into the Mojave Desert as a process distinct from the spread of it into upland Peninsular California. Even so, it would not address the more fundamental problem. It would give us three wares, instead of one, but these would still be wares in the sense that Wheat et al. (1958) defined wares. We could not expect that such a Mojave Brown Ware would contrast on its eastern boundary in a straightforward manner from Tizon Brown Ware of Arizona; we would surely expect that on its southwestern margin, it would intergrade into Tizon Brown Ware of the Peninsular Ranges. All in all, it would probably create many inconsequential problems. Mojave Brown Ware could be misused, just as Tizon Brown Ware has been, only on a smaller geographic scale.

Certainly, the easier solution is to formalize the developing practice of 30 years, and accept Tizon Brown Ware as the appropriate taxon for paddle-and-anvil pottery produced in the Mojave Desert. But we must remember that it is a ware, pottery grouped into a single taxon simply because of generic material similarities and a common method of bonding and thinning. A class of artifacts created because of such generalized shared characteristics will have, as Wheat et al. (1958:34-35) said so many years ago, "little temporal or spatial implication."

If wares are not types, what about "types" in a ware like Tizon Brown Ware? How are we to extract temporal and spatial implications from the pottery of the Mojave

Desert? Types, in the sense of formally named and defined ones (Valley of Death Brown, to create an imaginary example) are supposed to be distinguishable from other such types, and to have temporal and spatial implications. Traditionally, types would be the apparent solution to time-space systematics for Tizon Brown Ware.

Generally in ceramic classification, there is an explicit relationship between wares and types. Wheat et al. (1958:34-35) defined wares as "large grouping[s] of pottery types" Rice (1976:540) told us that Mayanists disagreed as to whether one first separated pottery into wares and then further subdivided them into types, or whether a ware was an integrative device, the composite of a number of previously identified and described types. It is clear that Tizon Brown Ware is not the composite of a number of previously identified and described types, and I am not at all sure that we should try to subdivide it into types. In fact, I am rather certain that we should not.

It is not that the pottery grouped within Tizon Brown Ware, even from the restricted area of the Mojave Desert, does not vary. It almost surely does vary spatially, and may vary with time, as well. In the Mojave Desert, the paddle-and-anvil brown pottery is essentially plain. That is to say that it is not painted or otherwise decorated, as for instance by surface manipulations. As a result, it has few stylistic characteristics that might serve to distinguish types. Spatial variation probably resides primarily in the materials from which the pottery is made; temporal variability may reside in the single, most evident stylistic characteristic of these vessels, rim/lip forms (Lyneis 1988d).

My observations from the central Mojave Desert (Lyneis 1988a, 1988b, 1988c, 1988d) suggest (although they do not prove) that paddle-and-anvil-thinned pottery was produced widely in that area, at many localities,

often in small lots, using materials from the immediate vicinity. If that is more broadly the case, the geographic pattern of variation in materials in Tizon Brown Ware will be, and seems to be, subtle and fine-grained. The materials available in a desert region where granitic/metamorphic rock dominates the landscape will be very similar in all parts of that region. Unless the inhabitants sought out rare and distinctive materials, the pottery from the whole area also will be similar in its materials. In the Mojave Desert, as in much of the California deserts, the landscape is dominated by granitic/metamorphic outcrops. The people who made paddle-and-anvil pottery in the Mojave Desert seem to have chosen, or just used, the weathering products of this landscape, and detritus from this granitic/metamorphic lithology consistently forms the inclusions in their pottery. This commonality of materials is a key characteristic of Tizon Brown Ware. With ordinary sherd analysis where, at best, the larger inclusions are accurately identified on a large, freshly broken edge of a sherd with the aid of a low-power binocular microscope, the pottery from one area cannot be characterized in ways that will distinguish it from that of other areas in the Mojave Desert. At this level of analysis, it will not be very different.

We will move ahead in a more satisfying manner, I think, if we do not try to establish types as analytical units within this plain brown pottery. There is not a lot of time/space information that can be retrieved by the ordinary techniques of sherd analysis, and what there is will be obscured, not clarified, by "typing" plain sherds. Rim form may prove to be a useful temporal variable. Rim forms on Tizon Brown Ware from the central Mojave Desert resemble those of Lower Colorado Buff Ware. We may find that they change with time, as rim forms apparently do in the Lowland Patayan

Ceramic Tradition (Waters 1982a:283). Changing rim forms on paddle-and-anvil-thinned vessels can be examined without assigning sherds of Tizon Brown Ware to "types." Defining the nature of variation in materials on paddle-and-anvil pottery in the Mojave Desert will be a large-scale, high-tech enterprise. Only then will we know if there are localized materials that we can use to distinguish the pottery from a particular valley, or a particular portion of the Mojave Desert.

In the meantime, there is much that can be done. We can describe and compare the *assemblages* of pottery from particular contexts. In the Mojave Desert, three wares are found. This paper has been primarily concerned with Tizon Brown Ware and Lower Colorado Buff Ware, but Great Basin Brown Ware (Bettinger 1986) also occurs, primarily north of the Mojave River. We have much to learn about the distributions of these three wares, and the implications of assemblages that include more than one of them. We can characterize the materials of the sherds in each ware, and ask if they are consistent with the proposition of localized production. If we keep to a rather narrow definition of Lower Colorado Buff Ware, we can distinguish some of the "intrusive" pottery, vessels that were moved, by transport or by exchange, some distance. In the groups of brown ware sherds, we can look for clues to vessel form, and perhaps function; we can examine the roles that ceramics played in different kinds of sites in the Mojave Desert and in different areas of the desert. And as we acquire more dated contexts for pottery in the Mojave Desert, we can begin to examine these issues in a temporal framework. But for now, the context will have to date the pottery: The temporal range of, and time-sensitive changes within, Tizon Brown Ware remain almost unknown.

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