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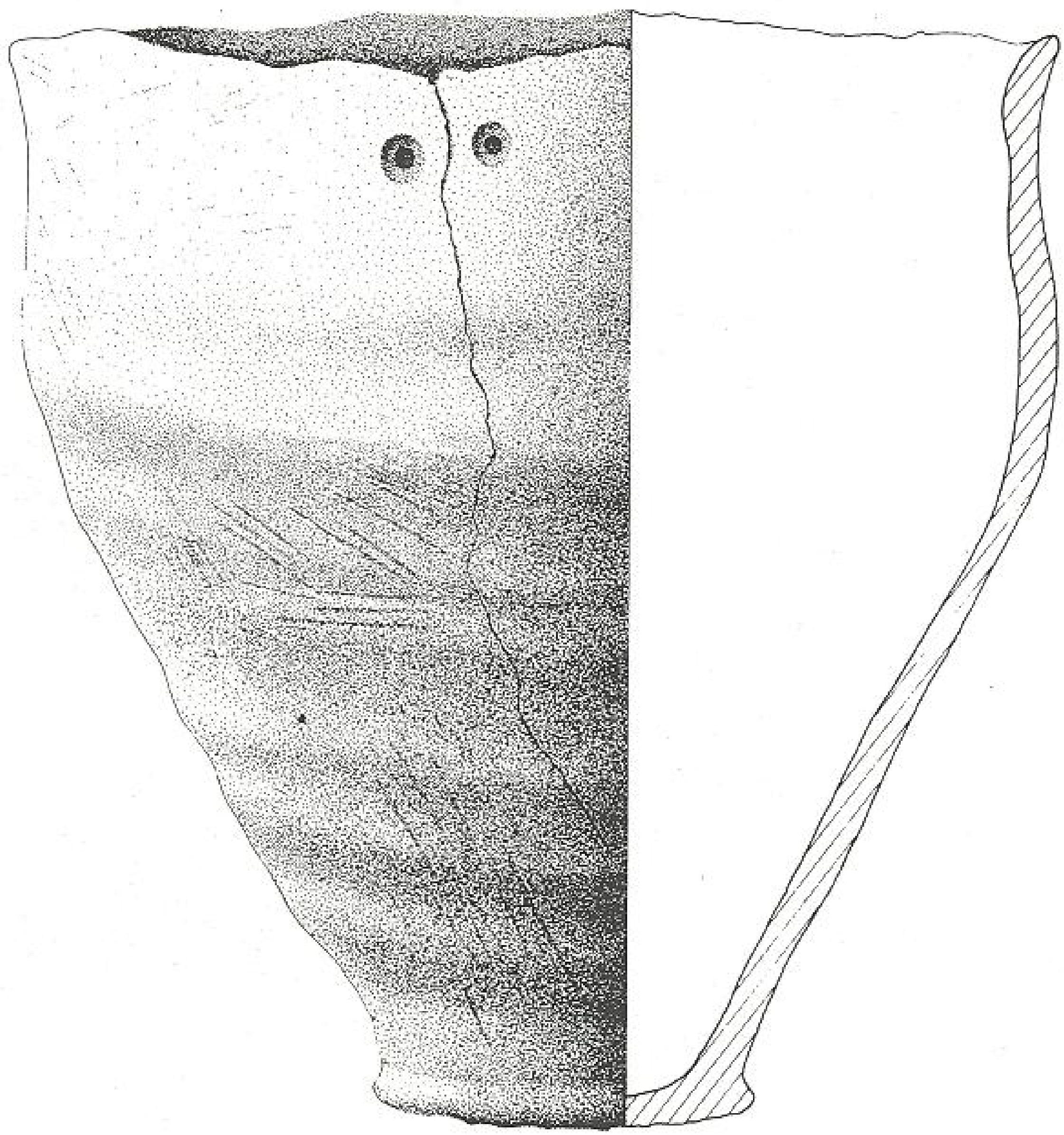

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Cover: Flat-bottomed Shoshonean Vessel. Illustration courtesy of B. Robert Butler.

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ARTICLES AND REPORTS

ABORIGINAL CULTURE HISTORY THROUGH LINGUISTICS AND ARCHAEOLOGY IN THE GREAT BASIN

Ruth Gruhn
University of Alberta

As harsh an environment though it may seem, the Great Basin has been successfully occupied by people for over 11,000 years. This fact, now well demonstrated by anthropologists, is lost upon its present inhabitants; not only those recent immigrants of European, African, or Asian ancestry but the very descendants of the earliest settlers, those peoples called Indians. Indians of today may feel that they have been in place since time immemorial, and so they argue in land claims cases; but they do not care to know exactly how long Indians have represented mankind in this part of the universe, and they are not interested in precise information about how their ancestors lived within the constraints of this landscape over the course of thousands of years. It would seem that only the newcomers, the intruders, strive to know the details of Indian prehistory; and to learn of the past in the Great Basin.

It has been observed that only Europeans or Europeanized individuals have an intellectual interest in discovering the history and understanding the culture of alien, non-European peoples (cf. Burridge 1973:1-42). The roots of European preoccupation with comprehending alien peoples extend back to the classical Greek philosophers, and to basic Christian beliefs. The fundamental Christian notion of the universal brotherhood of man leads to the need to understand and to incorporate other peoples into the Christian individual's world. The Greeks earlier contributed the basic notion of rational objectivity—the idea that an individual can stand outside the world, as it were, and dispassionately examine through reason any phenomenon of the universe including man himself. This concept is the fundamental basis of what is known as the scientific approach, curious to know and to understand all things.

Thus individuals of the European intellectual tradition strive to discover the past of the Great Basin. It will be knowledge of no practical use—yet we feel we must know. Since Europeans came to the area in the early 19th century, the number of individuals so engaged has increased constantly. Even in this highly practical and technical age the interest does not slacken; every university and museum in the Basin has its people who are concerned only with learning of the past, learning for its own sake. They are scientists pursuing diverse fields—geology, soils studies, paleontology and zoology, palynology and botany; as well as physical anthropology, archaeology, ethnology, and linguistics. As individuals they focus on very specialized research topics, collecting particular kinds of information and analyzing their data by complex methods in the laboratory or in the computer room. With these data, and according to theoretical approaches current in particular disciplines, models or concepts of the past are constructed and debated within each field.

Despite the many diverse research specialties, individuals interested in Great Basin prehistory keep in touch with developments in all disciplines. Archaeologists, those scholars who must be especially concerned with human history, have played the central role in coordination and synthesis of the results of diverse research projects into comprehensive models of the past. They maintain close contact with earth scientists and biological scientists who are striving to reconstruct the past environments of the Great Basin, the natural setting for past human activity. They derive from ethnographers information on the aboriginal lifeways of the historically-known native peoples, with which to infer by analogy patterns of livelihood and social structure of Indians of the past. They consider linguists' models of genetic relationships among languages; and may attempt to identify origins and movements of distinctive ethnic groups. They take into account the findings of physical anthropologists about human population variation in the present and in the past.

In recent years, however, many archaeologists have turned away from the goals of culture history, the attempt to reconstruct the history of specific areas and peoples, to follow a dream of discovering universal cultural laws, universal processes of prehistory. The humanistic approach to the study of mankind which has characterized anthropology and its division archaeology in the past has been consciously rejected by many contemporary archaeologists in a deliberate attempt to establish archaeology as pure *science*. Historical particularism has been eschewed in favor of a nomothetic approach, a search for general cultural "laws" to be established on the basis of specific principles of the philosophy of science, involving a hypothetical-deductive approach in problem formulation, and rigorous testing of explanatory models and hypotheses by statistical methods (cf. Watson *et al.* 1971). Past cultures are to be analyzed by systems theory; the people of the past are to be treated as objects, examples of general phenomena, their lifeways to be projected as systems flow charts and statistical models.

This intellectual approach, termed the New Archaeology, has been prominent in North American research institutions for twenty years now. Actually, one important part of the New Archaeology, the ecological approach, began in Great Basin archaeology over 40 years ago. Basin archaeologists have long studied the relationships maintained between prehistoric peoples and their environment, with stress on interpretation of the material evidence for economy and technology. Such studies continue, with increasing sophistication in analytical methods providing precise detail about prehistoric lifeways. For example, bone scrap, simple garbage left on the floor by past occupants of a rockshelter, reveals by an age-sex study of identifiable individual animals what time of year the people lived there, what particular kinds of animals they sought, and how much meat was obtained. Even more revealing is the analysis of what are politely referred to as coprolites or "scat," often found preserved in dry caves and containing the remains of plant foods as well as traces of meat protein so that total diet may be inferred.

So we have come to know more of the details of prehistoric life through the sophisiticated modern techniques of field archaeology; yet at the same time it seems as if the prehistoric people themselves are becoming more distant from us, more abstract, less human. With the flow charts and the statistics, it is becoming more difficult to picture prehistoric man as an individual with values and the capacity of choice. With the New Archaeology, the Great Basin area will become an academic laboratory or testing ground for scientifically derived models of general human adaptation to desert environments, another source of academic theories which are aimed to be of universal significance; and it will be harder to see the history of peoples. Archaeological literature is already extremely technical reading, now becoming incomprehensible to other anthropologists, let alone interested laymen. Discarding historical particularism and the humanistic view, archaeology may become more scientific in character; but at the same time more of a strictly academic endeavor.

The discipline of linguists too has undergone a fundamental shift in theoretical goals from the particular to the general or universal. Since Chomsky (1957, 1976) proclaimed that fundamental features of grammar—"deep structure"—are universal in human language and relate to fundamental structures of the human mind, the frontier of linguistic research has been considered the study of transformational grammar, approaches to psycholinguistics, and various attempts at experimental linguistics. It is notable that linguists with strong anthropological interests have been extremely reluctant to join this movement; and a solid body of "comparative linguists" continues to pursue problems of the history of specific speech communities in various geographical areas of the world.

It is the specific objective of comparative linguists to determine whether or not two or more languages are genetically related; that is, descended from a common ancestral protolanguage. The process of identification of related languages is a straightforward one (cf. Greenberg 1957a, 1957b). A common methodological procedure is to compare lists of fundamental vocabulary words, common everyday words rarely subject to borrowing from one language to another; and score for cognates, words similar in both form and meaning. A fundamental vocabulary resemblance of more than 5 percent is taken as greater than chance, and can be attributed to an historical relationship. The hypothesis of historical relationship based on fundamental vocabulary resemblances must ultimately be supported by detailed comparison of the phonology and morphology of the languages involved. A further task is to determine to what degree particular members of a group of languages are related to others in the group; that is, to establish the branches or subgroupings of languages within a major language family. This task of establishing as accurately as possible the language subgroupings is a very difficult one which is a major preoccupation of comparative linguists working with a particular language family.

The task is well worth the effort, however, for much historical information about particular peoples can be inferred from an accurate genetic classification of languages. For one thing, with the implication that language subgroups branched off from the parent ancestral protolanguage and in turn differentiated at different times, subgroupings at various levels of hierarchy in a genetic classification must imply relative time depths for the existence of single speech communities associated with reconstructable protolanguages at the various levels of classification. To cite the well-known case of the IndoEuropean stock as an example, it can be inferred from the genetic classification of Indo European languages that at some remote time there existed a single proto-IndoEuropean speech community; and subsequently in time, following divergence through expansion or migration, there existed a proto-Teutonic speech community, a proto-Slavic speech community, etc. The attempt to date the divergence of related language subgroups in absolute years has proven questionable, but certainly relative time of expansion and/or migration may be gauged by measurement of the nature and degree of genetic relationships between languages.

Analysis of the geographic distribution of related languages can provide information concerning possible origins and movements of particular peoples. A language family may have a wide geographical distribution, but certain major subdivisions of the family usually cluster in a restricted area. Following an idea of Edward Sapir (1916), linguists may hypothesize that the area of greatest observed diversity among the languages of a major family—the relatively restricted geographical area of concentration of member languages of its major subdivisions—is likely to be the original homeland, on the premise that a maximum length of time is required for major subdivisions to develop in a given geographical area. More widely dispersed languages or language groups, demonstrating homogeneity over a wide area, are usually held to result from more recent expansion or migration from the homeland. An elaborate procedure has been developed by comparative linguists for application in particular cases of analysis of simple and complex geographical distribution of related languages (Dyen 1958; Diebold 1960). Various models of population origin, expansion, or migration are devised and considered in order to explain the observed distribution of related languages; and according to the basic scientific principle of parsimony, that model which involves the least number of moves of the speech communities in question is taken as the more likely.

Another source of historical information to be derived from studies in comparative linguistics is the reconstruction of protolanguages. Linguists are expecially concerned with reconstruction of the details of the phonology and morphology of the ancestral language; but most important for culture historians is the reconstruction of the cultural vocabulary, especially words for specific technological elements and specific features of the economy, social organization, and religion. The assumption is that vocabulary must reflect the cultural inventory of a people; and anthropologists are especially concerned to find if the early speech community may or may not have possessed horticulture, ceramics, a stratified social structure, specific religious beliefs or rituals. A careful reconstruction of cultural vocabulary of the ancestral protolanguage speech community can provide much detail. Also, in regard to cultural vocabulary, the linguists' analysis of the phenomenon of borrowing words from one language to another may provide evidence of specific historical contacts between language groups, and the nature of that contact.

Simply a relatively small sample of the speech of a native person of the Great Basin, then, reveals to the comparative linguist much about the history of his people: who their relatives are; where their group originated; how they dispersed over the territory; what contacts they had with other peoples; what economic, technological, social, and religious attributes their ancestors likely possessed. Because inference is involved, the model of historical events based on comparative linguistic data must always be tentative; and although certain points are beyond debate, details of the linguists' model of the history of the Great Basin peoples have been reconsidered in recent years.

It has long been accepted that the languages of the native peoples of the Great Basin all belong to the Utaztecan stock, a major language stock of North America with an essentially continous geographical distribution from southern Idaho and Oregon through the Great Basin and Southwest down into central Mexico, with enclaves in Central America as far south as Costa Rica. The coordinate major branches, as set out by the Utaztecan specialist James Goss (1977), are (from north to south) Numic, Tubatulabalic, Hopic, Luisenic, Pimic, Taracahitic, Coric, and Aztekic. The Aztekic languages are concentrated in central Mexico, with enclaves in Central America; the Coric and Taracahitic languages are in the Sierra Madre range of northwest Mexico; Pimic languages extend from northern Mexico into southern Arizona; Hopic is in northeast Arizona; the Luisenic and Tubatulabalic languages are in southern California. The languages of the Numic family—Mono, Paviotso, Shoshone, Kawaiisu and Ute—were distributed over the entire Great Basin and well into southern Oregon, southern Idaho, western Wyoming, and western Colorado.

The implication of this genetic classification, with the eight major branches coordinate, is that after an initial, early expansion of proto-Utaztecan from the general area of the U.S./Mexican border, the major branches of the Utaztecan language stock diversified in place, over the extensive area from the Great Basin into central Mexico. This linguistic model should correlate with archaeological evidence.

The archaeological record demonstrates that the Great Basin has been occupied by people since the late Pleistocene period, the conclusion of the Ice Age. Paleoenvironmentalists—geologists, soils scientists and paleontologists—have found as a result of detailed studies that the Great Basin in late Pleistocene times was an altogether different place than it appears now (cf. Mehringer 1977). Before 11,000 years ago the climate was cooler and effective precipitation higher, giving rise to a number of so-called pluvial lakes great and small. The Great Salt Lake is a remnant of one, designated Lake Bonneville; another large lake, called Lake Lahontan, existed in west-central Nevada; and there were numerous smaller lakes in valleys and basins between the mountain ranges. The lakes were fringed with marshes, and upland zones were grasslands or parklands. The treeline was lower on the mountain slopes, with pinyon and juniper in zones where only sagebrush is present today; and spruce and pine grew at lower elevations than at present. In addition to modern animal species, there were mammoth, horse, camel, sloth, and bison. It appears that early man in the Great Basin lived in a much more productive natural environment than exists at present in the area.

The archaeological evidence for aboriginal peoples in the Great Basin before 11,000 years ago is still very sparce. Good archaeological sites dating to the late Pleistocene are hard to come by, due to the processes of erosion which have acted since ancient campsites were abandoned. Research has concentrated on the excavation of well-stratified sediments in caves and rockshelters which were obvious prime living quarters for early man. Most of the caves and rockshelters excavated to date, however, have proven to have been flooded when the pluvial lakes were high; and could have been occupied only when the lake levels dropped markedly after 12,000-11,000 years ago. In recent years archaeologists seeking cave sites have learned to set their sights higher. Smith Creek Cave in eastern Nevada was situated well above the highest stand of pluvial lake Bonneville; and it contained an undisturbed campsite of hunters dating to about 12,000 years ago (Bryan 1977).

Stone tools have often been found along the old high strandlines of pluvial lakes, and presumably these artifacts date to the time of high lake levels in the late Pleistocene; but the artifacts now lie on the surface without a definite stratigraphic context to provide firm and conclusive dating. In the area of China Lake in eastern California, in a military zone which has been protected from disturbance by amateur artifact collectors, the archaeologist Emma Lou Davis has dedicated years to a very careful and detailed study of the surface associations of old strandlines, paleosols, stone artifacts, and fossilized animal remains. In a detailed publication (Davis 1978) she has provided vivid reconstructions of camps and kill sites along the old lakeshores, where early hunters dispatched and butchered mammoth, horse, and camel well before 11,000 years ago.

At the close of the Pleistocene, the descendants of the early settlers of the Great Basin area had to develop different ways of life. After 11,000 years ago, the climate changed to a warmer and drier regime. Desert became established. The pluvial lakes shrank drastically; and most disappeared altogether, leaving only small ephemeral waterbodies or salt pans on the valley floors. Vegetation patterns shifted, with the retreat of the trees upslope and the expansion of xerophytic plants. The larger elements in the fauna—mammoth, horse, camel, and sloth—disappeared, leaving only antelope, deer, mountain sheep, rabbits, rodents, reptiles, and birds as sources of meat. As the environmental changes took place the indigenous peoples adjusted by changing their lifestyle. Having to exploit skillfully every available resource in order to survive in the desert, local groups carried out an annual round of movements and activities to exploit different microenvironmental zones at the time of maximum seasonal productivity. Small bands of people, as small as individual family units, harvested seeds and roots in the valleys in spring and summer, and collected pinyon nuts on the lower mountain slopes in the fall. They hunted antelope on the flats, deer in the canyons, and mountain sheep on the upper slopes. Specialized material equipment for hunting and collecting activities is found by the archaeologist with the refuse left on their campsites in the open rockshelters—heavy milling stones for processing plant foods; baskets for transport and storage; stone dart points, knives, scrapers, pounders; piercing tools, shredding tools, and flaking tools of bone.

The way of life of the aboriginal peoples of the Great Basin after 11,000 years ago is termed by archaeologists the Desert culture, or the Desert Archaic tradition (cf. Jennings 1974:154-170). It was by no means uniform over the entire area or throughout time: indeed, archaeologists now recognize that there was a great deal of local variation, in economic focus according to local resources, and in style of artifact forms according to local tastes of the day.

It would seem a simple deduction to conclude that the Desert Archaic cultural tradition long established in the Great Basin can be correlated directly with Utaztecan-speaking peoples, and the speakers of Numic languages found in the area by European explorers in the 19th century are the direct descendants of the earliest aboriginal peoples who occupied the Great Basin. Most archaeologists are not quite ready to accept this proposition, however. A problem remains with archaeological evidence for population fluctuations and marked culture changes in certain parts of the area, especially within the last 1,500 years of prehistory.

In the interval from about A.D. 500 to 1300 a farming culture with permanent village settlements and pottery appeared in Utah and adjacent eastern Nevada and western Colorado. The house structures; the pottery technology and design; and most of the rock art with which these people, called Fremont by archaeologists, graced the walls of rockshelters and other rock faces in the area which they occupied, are clearly derived from contemporary traditions in Arizona and New Mexico, where horticulture, permanent villages, ceramics, and complex religious systems had been established earlier in the first millennium A.D. On the other hand, some motifs of Fremont rock art are derived from earlier and contemporary art styles within the Great Basin (Schaafsma 1971); and it has become clear that some of the Fremont people depended heavily on hunting and collecting, following Great Basin patterns, as a supplement to their corn crops (Marwitt 1970). Those crops apparently failed, perhaps in a marked dry period about A.D. 1100-1200; and by A.D. 1300 the Fremont culture had disappeared from the Great Basin (Lindsay 1986).

Archaeologists are still preoccupied with the problem of ethnic identification of the Fremont people (Aikens 1972, Madsen 1975, Madsen and Berry 1975). Were they immigrants, an intrusive population from the Southwest or elsewhere, or were they indigenous peoples, who had adopted horticulture and ceramic styles from contacts with people farther south? Were they Numic speakers? The question must turn on detail. Fremont basketry is quite different in technique and design from Numic basketry (Adovasio 1986). The Fremont ceramics are quite different from wares which can definitely be identified as made by Numic speakers; and there is at least one rockshelter site where the two kinds of pottery occur in distinct sequent occupations, suggesting distinct ethnic groups (Fowler *et al.* 1973). But if the Fremont were not Numic speakers, then who were they? Definite identification of any other language group cannot be supported by present archaeological evidence.

On the western side of the Basin, in the Humboldt and Carson Sink areas in far-western Nevada, was another distinctive late prehistoric tradition, referred to as the Lovelock culture (Grosscup 1960; Heizer and Napton 1970), which focused upon intensive exploitation of the resources provided by lakes and marshlands—fish, shellfish, migratory waterfowl, edible marsh plants. The Lovelock culture is known from rockshelters and open village sites which have been radiocarbon-dated between about 2700 B.C. and A.D. 500. Close similarities are seen in artifact types between Lovelock and contemporary central Californian cultures; and the basketry of the Lovelock culture as well is quite unlike later Numic types in the Great Basin. With the close California connection, and the sharp break observable between Lovelock and late Numic technologies and styles, it would appear that the Lovelock people were not Numic speakers.

Thus the most prominent cultures of late prehistoric times on the east and west sides of the Great Basin cannot be linked directly with the historic Numic peoples. Archaeologists have long accepted an argument by the linguist Sydney M. Lamb (1958) that Numic speakers were actually very late migrants into the Great Basin (cf. Gunnerson 1962, Bettinger and Baumhoff 1982, Adovasio 1986). The linguistic case was made upon the fact that the Numic languages—Mono, Paviotso, Shoshone, Kawaiisu and Ute—are very closely related to each other; indeed, a glottochronological analysis (by which the absolute time divergence of related languages is calculated from the number of similar words retained in fundamental vocabulary) suggested that the Numic languages began to separate from each other only about 900 years ago. It was believed, too, that the Numic languages were more closely related to Luisenic and Tubatulabalic in southern California than to any other branches of Utaztecan. The evidence of total geographic distribution would thus indicate that the original homeland of the Numic branch was in the Death Valley-Panamint Valley region in the extreme southeast corner of the Great Basin; and from there the ancestors of the Mono and Paviotso, the Shoshone, and the Kawaiisu and Ute had spread out in a fan-shaped distribution beginning about A.D. 1000, their trail through Nevada and Utah into southern Oregon, southern Idaho, and western Wyoming marked by the small "Desert Side-notched" arrowheads and "Shoshoni" pottery which characterize late prehistoric archaeological remains in these areas.

This model of a late migration or expansion of Numic speakers has been questioned, however. Goss, who once supported the model, now categorically rejects it (Goss 1977:56-60). His placement of the Numic branch of Utaztecan as coordinate with all other branches—not only Luisenic and Tubatulabalic but also Hopic, Pimic, Taracahitic, Coric, and Aztekic—does away with any necessity of placing the original homeland of the Numic speakers near southern California, where Luisenic and Tubatulabalic are found. As Goss points out, there is little likelihood that in a particularly barren place like Death Valley, only very sparcely occupied at any time, population pressure could build to create a massive migration of people from there throughout the Great Basin.

It appears that Melvin Aikens and Y.T. Witherspoon (1986) have an answer to the problem of language distributions in the late prehistoric period. They argue that the Numic speakers have been in the central part of the Great Basin, where there *is* an archaeological record of cultural continuity, for at least the last 5,000 years. According to their model, the Numic speakers had long maintained a flexible adaptation to the more severe desert conditions in the central Basin; and when the lacustrine adaptation of the Lovelock people and the horticultural adaptation of the Fremont people failed under changed environmental conditions, Numic speakers were able to expand from the central part of the Basin into the territories abandoned by the non-Numic peoples on the peripheries.

The simplest model for the earlier prehistoric period would propose that Numic speakers have long been in the Great Basin. The first people in the Basin were their direct ancestors, with much-later intrusions of the people of the Fremont and Lovelock cultures on the peripheries. It is true that the Numic languages have remained very closely related, even though each was spread over an extensive zone. They were, however, a nomadic people, a sparce population living in small bands which moved over large territories in their seasonal rounds of hunting and collecting. We know from the study of social relationships of people living in small bands that there is a continuous flux in the membership of any one group, as individuals move in or out, to "greener pastures," or to marry, or to visit relatives, or to get away from people they don't like (cf. Turnbull 1968). The result of such population flux could be homogenization of language over large areas, and inhibition of the development of language diversity even over extensive territories (Shaul 1986). Thus it is quite possible that Numic speakers have been in the heart of the Great Basin, at least, for millennia without marked language differentiation.

Our understanding of the varied behavior of people living in small dispersed groups should serve as a warning against forcing human beings and human societies into an abstract systems model contructed by an academic according to his own conception of the way humans should act. The more closely anthropologists examine particular human societies, those which have been simply typed as "hunting/collecting bands," or "peasants," the more obvious the variations of human behavior become, infinitely complex variations unpredictable in abstract models of the scientist.

We are always forced to *model* the past, because the past is gone. Models of Great Basin prehistory must always be tentative, approximate, subject to continuing debate and modification as more factual data are collected and as the theoretical approaches of researchers evolve. Most importantly, models and conceptions of what happened in the past must be open to change as we observe more closely actual human behavior; for prehistoric artifacts were made by human beings, and protolanguages were spoken by people.

REFERENCES

Adovasio, James M.

1986 Artifacts and ethnicity: basketry as an indicator of territoriality and population movements in the prehistoric Great Basin. Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings. Carol J. Condie and Don D. Fowler (eds.). pp. 43-88. **University of Utah Anthropological Papers** no. 110.

Aikens, C. Melvin

1972 Fremont culture: restatement of some problems. **American Antiquity** 37(1):61-66.

Aikens, C. Melvin and Y.T. Witherspoon

1986 Great Basin Numic prehistory: linguistics, archaeology, and environment. Anthropology of the Desert West: Essays in Honor of Jesse D. Jennings. Carol J. Condie and Don D. Fowler (eds.). pp. 7-20. **University of Utah Anthropological Papers** no. 110.

Bettinger, Robert L. and Martin A. Baumhoff

1982 The Numic spread: Great Basin cultures in competition. **American Antiquity** 47(3):485-503.

Bryan, Alan L.

1977 Smith Creek Cave. **Anthropological Papers of the Nevada State Museum** no. 17, pp. 164-251.

Burridge, Kenelm

1973 **Encountering Aborigines.** London: Pergamon Books.

Chomsky, Noam
1957 **Syntactic Structures.** The Hague: Mouton.

1976 **Reflections on Language.** New York: Fontana Books

Davis, Emma Lou (ed.)
1978 The Ancient Californians. **Natural History Museum of Los Angeles County Science Series** no. 29.

Diebold, A.R.
1960 Determining the centers of dispersal of language groups. **International Journal of American Linguistics** 26:1-10.

Dyen, Isidore
1958 Language distribution and migration theory. **Language** 32:611-626.

Fowler, Don D., David B. Masen and Eugene M. Hattori
1973 Prehistory of Southeastern Nevada. **Desert Research Institute Publications in the Social Sciences** no. 6.

Goss, James A.
1977 Linguistic tools for the Great Basin prehistorian. **Desert Research Insitute Publications in the Social Sciences** no. 12, pp. 49-70.

Greenberg, Joseph H.
1957a Genetic relationships among languages. **Viking Fund Publications in Anthropology** no. 24, pp.35-45.

1957b The problem of linguistic subgroupings. **Viking Fund Publications in Anthropology** no. 24, pp. 46-55.

Grosscup, Gordon L.
1960 The Culture History of Lovelock Cave, Nevada. **University of California Archaeological Survey Reports** no. 52.

Gunnerson, James H.
1962 Plateau Shoshonean prehistory: A suggested reconstruction. **American Antiquity** 28(1):41-45.

Heizer, Robert F. and Lewis K. Napton
1970 Archaeology and the Prehistoric Great Basin Lacustrine Subsistence Regime as Seen from Lovelock Cave, Nevada. **Contributions of the University of California Archaeological Research Facility** no. 10.

Jennings, Jesse D.
1974 **Prehistory of North America.** 2nd edition. New York: McGraw Hill.

Lamb. Sydney M.
1958 Linguistic prehistory in the Great Basin. **International Journal of American Linguistics** 24(2):95-100.

Lindsay, La Mar W.
1986 Fremont fragmentation. Anthropology of the Desert West: Essays in Honor of Jesse D. Jenings. Carol J. Condie and Don D. Fowler (eds.). pp. 229-252. **University of Utah Anthropological Papers** no. 110.

Madsen, David B.
1975 Dating Paiute-Shoshoni expansion in the Great Basin. **American Antiquity** 40(1):82-86.

Madsen, David B. and Michael S. Berry
1975 A reassessment of northeastern Great Basin prehistory. **American Antiquity** 40(4):391-405.

Marwitt, John P.
1970 Median Village and Fremont Regional Variation. **University of Utah Anthropological Papers** no. 95.

Mehringer, Peter J., Jr.
1977 Great Basin Late Quaternary environments and chronology. **Desert Research Institutie Publications in the Social Sciences** no. 12, pp. 113-167.

Sapir, Edward
1916 Time Perspective in Aboriginal American Culture: a Study of Method. **Anthropological Series** 13, **Canada Department of Mines, Geological Survey Memoir** no. 90.

Schaafsma, Polly
1971 The Rock Art of Utah. **Papers of the Peabody Museum of Archaeology and Ethnology** no. 65.

Shaul, David L.
1986 Linguisitc adaptation in the great Basin. **American Antiquity** 51(2): 415-416.

Turnbull, Colin
1968 The importance of flux in two hunting societies. **Man the Hunter.** Richard B. Lee and Irvine DeVore (eds.). pp. 132-137. Chicago: Aldine.

Watson, Patty Jo, Steven A. LeBlanc, and Charles L. Redman
1971 **Explanation in Archaeology.** New York: Columbia University Press.

*IS THERE SUCH A THING AS A SHOSHONEAN POTTERY-MAKING TRADITION?**

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My objective here is to raise a question about the paradigm that seems to have governed ceramic studies in the Great Basin for the past 30 years or more (see Pippin 1986). In doing so, I shall be following the path of primitive ceramics rather than that of archaeology. Primitive ceramics is an attempt to understand the interrelationship of man and clay through direct involvement with that material, free of other considerations.

The pottery in question is sometimes referred to as Shoshonean "crudware," in reference to the apparent crudeness and friability of this pottery. The expression "crudware" is indicative of a lack of knowledge of the physical requirements of this particular kind of pottery in relation to its most common use. "Crudware" implies the absence of a theoretical perspective from which to comprehend the functional beauty of this kind of pottery. I propose to outline such a perspective, one that would enable us to answer the questions, why would a group of hunter-gatherers, supposedly well adapted to their habitat for many generations, ever bother to take up pottery making; and if they chose to do so, why would they make such underfired, easily broken pottery of the kind under discussion; and equally important, how did they acquire knowledge of ceramics in the first place?

To put these questions another way, what is (was) the principal use(s) of fired clay vessels (pottery), especially among North American Indians, and what is the advantage of using a fired clay vessel for this purpose?

The most common use by far of fired clay vessels is the preparation of foodstuffs by direct fire-boiling, and that is the principal use made of pottery by North American Indians (see Driver and Massey 1957). As to the advantages of using pottery for cooking, it has been pointed out that:

> ...the refractory properties of pottery permit the direct and sustained heating of water and food [,which, in turn,] can render certain [food] resources more digestible and palatable. Leafy plants, for example, can be heat treated without loss of flavor or texture through carbonization or dehydration. Some plant or animal resources may be more acceptable when cooked in various combinations....Cooking in ceramic vessels prevents loss of meat or juice into the open fire...and detoxifies some plant and animal products making them safe and palatable for human populations...there are a wide variety of...plant foods that are detoxified by heating, roasting, soaking or other processes for which ceramic vessels are indispensable....[In short,] the refractory properties of [clay vessels] expand the range of food preparation and preserving techniques not possible with other non-metal containers. Without ceramics, food preparation techniques are more limited. (Condensed from Arnold 1986: 128-136)

More than a decade ago, Fumiko Ikawa-Smith (1976:515) concluded that pottery making can lead to an increase in the carrying capacity of the habitat by broadening the resource base through increased efficiency in extracting nutrients from available foodstuffs, with direct boiling in a fired clay vessel being one of the most widely used methods to achieve that end. I would suggest that this is the primary adaptive value of the seemingly crude and poorly made pottery called Shoshonean or Intermountain ware, namely to extract nutrients from available resources in a more efficient and effective manner than previously possible, thereby increasing the carrying capacity of the existing habitat (one could also argue that direct boiling in a clay vessel opened a new ecological niche within the existing habitat).

Allowing that a cooking pot offers an adaptive advantage, what are the desirable properties of such a pot? According to Owen Rye, himself a ceramist, "One of the most difficult properties to achieve [in cookware generally] is a resistance to thermal shock, which causes cracking during repeated heating and cooling. Cracks develop because the outer wall, exposed directly to the fire, expands more than the inner wall, which is kept cooler by the contents..." (Rye 1981:27). Based on his experiences in west Africa, the late Michael Cardew suggests that there are really only two basic considerations in making ceramic cookware: the coarseness of the clay body and the temperature at which it matures into a ceramic (Cardew 1969:78-79). Almost any clay body can be utilized, provided that it contains or has added to it a sufficient quantity of coarse materials, such as crushed calcite, quartz or other rock, crushed pottery (grog), bits of shell, or the like. A firing temperature in the range of 550-650 degrees Celsius will suffice in most instances. This is well below the maturation temperature of most clays; the object here is to underfire the clay (Butler 1986). According to Cardew (1969:77), traditional west African potters take great pains not to exceed the minimal firing temperature, even though they can achieve higher firing temperatures with relative ease. My own experiments (Fig. 1) with so-called Shoshonean "crudware" (Butler 1985) have shown that this type of pottery meets the aforementioned cookware requirements extremely well, as if the people who made this type of pottery knew exactly what they were doing. Thus, Shoshonean "crudware" is coarse-textured and underfired for good reason: these are the universal hallmarks of successful

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primitive cookware. However, the particular form of this pottery—flat-bottomed and splayed-walled—poses a different question.

Rye (1981:27) states that "most cooking pots have rounded bottoms and simple body contours" because "thermal gradients, which cause cracking, are minimized by uniform thickness of the wall and absence of sharp angles or changes in direction." The flat-bottomed, splayed-wall Shoshonean ware would appear to violate this general form of a successful cookware, as do the thin rims of these vessels, which are readily subject to dunting cracks. "When a vessel is cooled very rapidly, heat is lost most quickly from the rim; this cooling places the rim in tension and a dunting crack may form. The crack is wider at the rim than at its lower end" (Rye 1981:114). Paired holes, one on each side of the dunting crack, are common in Shoshonean pottery; sinew or cordage was passed through these to stabilize the wall of the pot and to prevent the dunting crack from spreading further.

The shape and method of constructing Shoshonean cookware is not at all unusual; it is essentially the same as that of early pots found distributed from the Baltic States eastward to Outer Mongolia, China, Korea, and in the southeastern United States, but there is no necessary historical connection with the Eurasiatic and southeastern United States forms or methods of construction. However, this particular shape does have a specific range of distribution in the Great Basin. It is confined mainly to the Northeastern Great Basin subarea and adjacent Northwestern Plains. Such a distribution may indicate involvement of a common set of factors. I would like to suggest that this shape, like that of any other cookware, was adapted to or affected by the particulars of the cooking fires used in the Northeastern Great Basin and the adjacent area of the Northwestern Plains. Arnold (1986:149-150) gives specific examples of such a relationship; for example, cooking pottery in Madang, New Guinea, has a pointed base for stabilizing the pot among three stones during cooking. A flat bottom would eliminate the need for supporting stones; my own experiments (Butler 1985) indicate that flat-bottomed, splayed-walled pots can be set on the ground immediately adjacent to a large roasting fire and coals raked up aound the pot from the fire to provide sufficient heat for boiling/stewing foodstuffs in the pot with no difficulty. The pot can also be set in a bed of hot coals without tipping over. However, such pots are too fragile to move once they are set in or surrounded by hot coals and filled with liquids; in addition, they were probably left stewing for exended periods of time. These pots can survive a number of uses without any dunting cracks developing; on the other hand, dunting cracks may occur during the initial firing of the pot.

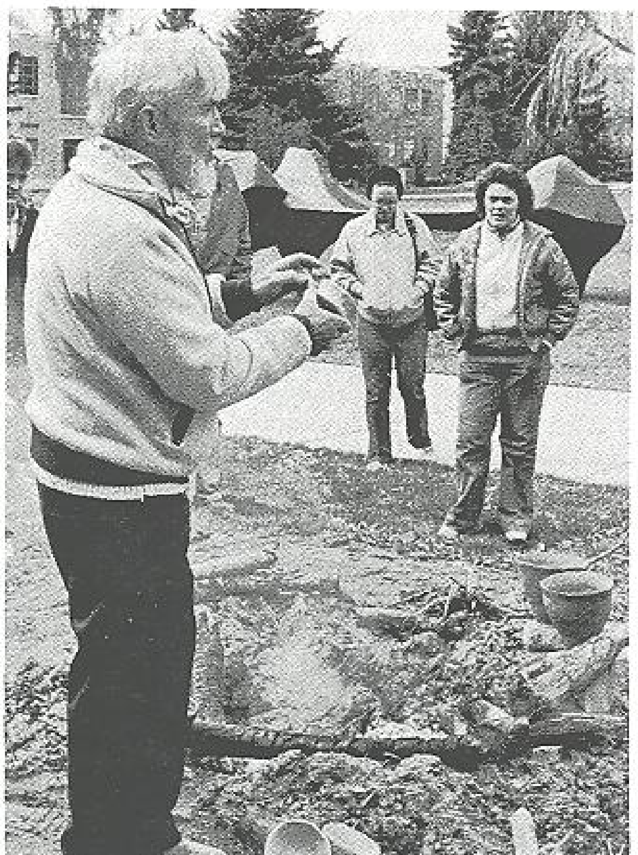

Figure 1. B. Robert Butler in his element—demontrating Shoshonean pottery technology to students in the Department of Art, Idaho State University (Photo by Debbie Tate).

One might wonder as to why the makers of these pots tolerated the dunting problem when (a) the problem could be easily resolved by thickening the rim of the pot, which, in fact, was done in some cases, or (b) a replacement pot could be readily made. There are some crucial factors bearing on (b), the ease of replacement. The pottery in question is rather easy to make, provided that it is the right time of year and a suitable clay body is at hand. The time of year is important because of the effects of wind and ambient temperature and humidity on firing pots in an open fire, the method of firing probably used in this instance. For example, the Yuman engaged in pottery making only during the summer months, mainly July and August, when both the ground and the fuel used in firing were at their driest (Rogers 1936:4-5). Thus, the thin-rimmed, flat-bottomed cooking pots may have been made only during a particular time of year (summer), but used at another or other times of the year (mainly winter and early spring), necessitating either a large number of pots or extensive repairs of the few pots that were probably made at the appropriate season of the year. The dunting was undoubtedly an inevitable but acceptable nuisance.

A final question remains: how did the hunter-gatherers of the Great Basin acquire knowledge of pottery making, particularly of the flat-bottomed, splayed-walled type under discussion? One answer has been that hunter-gatherers in the southwestern corner of the Basin acquired knowledge of pottery making from their more sedentary neighbors along the Colorado River to the east. While it is true that some of the pottery made in the southwestern part of the Great Basin bears a similarity to and has obvious continuities with Puebloan pottery, this does not explain the particulars of the pottery under discussion. As Arnold points out (1986:7-8), that which guides the construction of a pot is embedded in the motor habits of the potter, not in abstract mental templates as commonly implied by American archaeologists in talking about ceramic types. To paraphrase Arnold (1986:8), the way primitive potters think about the pottery they are making does not involve attribute clusters or abstract types (based on work by Kempton 1981). "Rather, the 'mental templates' used by potters consist of prototype visual categories which correspond most closely to a vessel shape" (Arnold 1986:8). In the same vein, I would say that rounded or pointed-bottom pots are not the prototypes for or the precursors of flat-bottomed, splayed-walled pots. What should be understood here is that all human groups are capable of developing a ceramic technology of their own, on their own, given an appropriate triggering mechanism; that is, pottery making is an adaptive response, rather than simply the result of chance encounter with other pottery-making peoples.

To sum up my sketchy theoretical speculations, with the exception of the dunting problem, which is by no means unique to the pottery at hand, the much maligned Shoshonean "crudware" is, in reality, a technically sound cookware of significant adaptive advantage to the peoples living in the Northeastern Great Basin subarea. Similar cookware was utilized by other hunter-gatherer peoples in the Desert West, Paiute Utility and Promontory wares among them, but there is no necessary direct historical linkage between or among these wares. Each of them is the result of a common adaptive response to a particular set of environmental factors, a technological breakthrough in food preparation/processing, and is evident in the fact that each "ware" is the product of a distinctly different production sequence. In fact, I would argue that the flat-bottomed, flowerpot-shaped vessels we call "Shoshonean" ware are a generic form of a specialized cookware—stew pots—peculiar to the northern part of the Great Basin culture area and not the product of any one distinctive production sequence. Furthermore, they are not the product of any particular group of peoples, save those who eventually became permanent residents of the region.

My guess is that these stew pots were used mainly in the winter and early spring for purposes of maximizing the yield of net useable protein from stored foods, in combination with a limited amount of fresh meat and bones.

REFERENCES

Arnold, Dean E.
1986 **Ceramic Theory and Cultural Process.** Cambridge: Cambridge University Press.

Butler, B. Robert
1985 Studies in the Replication of locally-made Prehistoric Pottery: I: An Introduction. Paper presented at the 12th conference of the Idaho Archaeological Society, held at Boise, Idaho.

1986 A Primer on Replicating Primitive Pottery. Papter presented at the 39th Northwest Anthropological Conference, held at Moscow, Idaho.

Cardew, Michael
1969 **Pioneer Pottery.** London: St. Martin's.

Driver, H.E. and W.C. Massey
1957 Comparative Studies of North American Indians. **Transactions of the American Philosophical Society** 47:165-456.

Ikawa-Smith, Fumiko
1976 On Ceramic Technology in east Asia. **Current Anthropology** 17:513-15.

Kempton, W.
1981 **The Folk Classification of Ceramics: A Study of Cognitive Prototypes.** New York: Academic Press.

Pippin, Lonnie C.
1986 Intermountain Brown Wares: An Assessment. Pottery of the Great Basin and Adjacent Areas, Suzanne Griset (ed.). **University of Utah Anthropological Papers** no. 111.

Rogers, Malcolm J.
1936 Yuman Pottery Making. **San Diego Museum Papers** no. 2.

Rye, Owen S.
1981 **Pottery Technology: Principles and Reconstruction.** Washington, D.C.: Taraxacum.

SHORT CONTRIBUTIONS

A POSSIBLE ATLATL WEIGHT FROM NORTHWESTERN OWYHEE COUNTY, IDAHO

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While conducting a survey of the Hardtrigger/Squaw Creek area, James Huntley and Bill Norquist discovered a possible atlatl weight near a spring in Shares Basin (10-OE-3500: Fig. 1), a sagebrush and grass environ situated 4,200 ft. ASL marking the divide between Hardtrigger and Squaw Creeks in northwestern Owyhee County, Idaho.

The possible atlatl weight (Fig. 2) is an isolated find with no other associated cultural materials. The material of manufacture is a hornblende gneiss or schist containing small particles of quartz or feldspar (White n.d.). One end of the object, the distal, is marked by a bulbous protrusion. The specimen measures 10.4 cm in length with a maximum width of 3.3 cm. Thickness varies from 1.4 cm near the distal end, tapering to 0.8 cm at the proximal end. The specimen weighs 82.8 grams and has a rough, undulating surface on the ventral side and has been smoothed and flattened on the dorsal side. Of particular importance to the establishment of the object's function is the bulbous protrusion at the distal end, measuring 2.0 cm in width and 1.2 cm in thickness, and a small grooved notch 0.1 cm in width, 0.8 cm from the proximal end. The margin opposite the small grooved notch has been broken off sometime in the past, but it is not certain whether this was the effect of manufacture or use, or due to weathering of the specimen. The bulbed end and the small grooved notch are marked by a smoother surface finish. The slight polishing circumscribes the lateral surface at these points, perhaps representing wear from lashing.

The scheme of typology for atlatl weights in the Northwest developed by Butler and Osborne (1959) has been applied to Great Basin weights (Butler 1965, 1979; Mildner 1974). Three general categories with subsets are recognized; roughly, Type Ia has a flat surface, is circular in shape, possessing a central perforation; Type Ib are long, thin and "cigar-shaped" in form; Type II weights are comprised of long, curved "boatstones"; and Type III are elliptically or oblately shaped with a central lashing groove. Type III specimens are highly variable in morphology. The weight from northwestern Owyhee County does not readily fall into this classificatory scheme, nor does it resemble the types used in the classificatory scheme developed for the Great Plains (Neuman 1967). Specimens in the northern Great Basin similar to the Shares Basin find were recovered on the east side of the Black Rock Desert, Humboldt County, Nevada, and are curated at the Lowie Museum (catalog nos. UCLMA 2-42612, UCLMA 2-42613, UCLMA 2-42614 and UCLMA 2-42615; see Mildner 1974:15-16). While these objects are of similar dimension and shape as the Owyhee County specimen, none have a bulbous protrusion or lashing grooves.

In southern Idaho and southeastern Oregon several atlatl weights have been recorded (Table I). The Oregon specimens include a Type II weight recovered along the west shore of Summer Lake (Butler 1961), a Type I near Harney Lake (Clark and Huntley 1977:7), a Type II from Coyote Flat (Clark and Huntley 1977:7), and a Type II specimen near Haystack Rock, a jasper quarry site

Figure 1. Map showing the location of atlatl weights in southern Idaho.

(Clark and Huntley 1977:9). Southeastern Idaho finds have been recovered north of the Snake River near an "Early Man" site (Type II; Butler 1961); at a sand blowout on the south bank of the Snake River below American Falls (Type IIIa; Butler 1965:44); near Soda Springs (Types I and IIIc; Butler 1965:44); and along the shore of Blackfoot Reservoir (Type II; Butler 1979). In Owyhee County, southwestern Idaho, two specimens have been recorded: one near the head of Succor Creek, adjacent to campsite 10-OE-888 (Type II; Clark and Huntley 1977:7), the other in the vicinity of the confluence of Big and Little Squaw Creeks in a previously potted rock shelter 10-OE-903 (Type II; Clark and Huntley 1977:8). These specimens, however, lack documented cultural associations. Due to the lack of dated material of similar form, only a tentative date can be assigned to the object. Based on the chronology of the Early and Middle Archaic periods in southern Idaho (Butler 1986), which mark the presumed use of dart points, the specimen dates between 1,400 and 7,500 years BP.

Atlatl weights, throwing sticks and dart shafts have been recovered throughout the Great Basin in Utah (Jennings 1957; Aikens 1970), Nevada (Loud and Harrington 1929; Orr 1972; Tuohy 1982) and Oregon (Cressman 1944; Cressman and Krieger 1940; Cressman *et al* 1942). No specimens of throwing sticks or dart shafts have been recovered in Idaho. It is uncertain whether the scarcity of associated materials is due to a real geographic distribution of these objects (Butler 1979:10) or a sampling bias. An additional possibility is that unmodified stones may have been used or that weight use was minimal (Mildner 1974:21). Experiments have demonstrated that the weight does not increase the velocity of the dart. It is more probable that the weight was used to reduce fatigue related to holding the throwing stick and dart in the ready position for a length of time (Peets 1960).

The distribution of atlatls is not well documented in the northern Great Basin or southern Idaho. Whether or not weights were used, and whether these weights were modified for use is unknown. Before the use of weights can be determined, the importance or function of the weight must be further examined. Nevertheless, the Shares Basin specimen furthers the record in regard to the distribution of these materials in the northern Great Basin.

Figure 2. Possible atlatl weight, bulbous end at the right and small grooved notch on the top margin near the left end. The vetral side is facing up.

Acknowledgements

The author wishes to thank the State Archaeologist, Dr. Thomas J. Green, for loaning the specimen to the Boise State University Archaeology Laboratory and for making the pertinent site information easily accessible; Dr. Craig M. White, Boise State University, for the determination of the specimen's material; and Drs. Mark G. Plew and Max. G. Pavesic, Boise State University, who provided assistance with the research and the preparation of the manuscript.

TABLE I
ATLATL WEIGHTS IN SOURTHERN IDAHO AND SOUTHEASTERN OREGON

Location	Type*	Reference
North of the Snake River, S.E. Idaho	II	Butler 1961
South bank of the Snake River, near American Falls, S.E. Idaho	IIIa	Butler 1965
Soda Springs, S.E. Idaho	I	Butler 1965
Soda Springs, S.E. Idaho	IIIc	Butler 1965
Shore of Blackfoot Reservoir, S.E. Idaho	II	Butler 1979
Harney Lake, S.E. Oregon	I	Clark and Huntley 1977
Coyote Flat, S.E. Oregon	II	Clark and Huntley 1977
West shore of Summer Lake, S.E. Oregon	II	Butler 1961
Haystack Rock, Malheur County, S.E. Oregon	II	Clark and Huntley 1977
Head of Succor Creek, Owyhee County, S.W. Idaho	II	Clark and Huntley 1977
Confluence of Big and Little Squaw Creeks, Owyhee County, S.W. Idaho	II	Clark and Huntley 1977
Shares Basin, Owyhee County, S.W. Idaho	—	

*typology following Butler and Osborne (1959)

REFERENCES

Aikens, C. Melvin

1970 Hogup cave. **University of Utah Anthropological Papers** no. 93.

Butler, B. Robert

1961 Additional Notes and Comments on Atlatl weights in the Northwest. **Tebiwa** 4(1):29-31.

1965 Contributions to the Archaeology of Southern Idaho. **Tebiwa** 8(1):41-48.

1979 An Atlatl weight from the Blackfoot Resevoir, Southwestern Idaho. **Idaho Archaeologist** 3(2):10-11.

1986 Prehistory of the Snake and Salmon River Area. **Handbook of North American Indians: Great Basin,** vol. XI. Warren L. D'Azevedo (ed.). pp. 127-134. Washington: Smithsonian Institution.

Butler, B. Robert and Douglas Osborne

1959 Archaeological Evidence for the Use of Atlatl Weights in the Northwest. **American Antiquity** 25(2):215-224.

Clark, Everett and Jim Hontley

1977 Recent Finds of Atlatl Weights from Eastern Oregon and Western Idaho. **Idaho Archaeologist** 1(2):5-9.

Cressman, Luther S.

1944 New Information on South-central Oregon Atlatls. **The Masterkey** 18(6):169-179.

Cressman, Luther S. and Alex D. Krieger

1940 Atlatls and Associated Artifacts from Southcentral Oregon. **Early Man in Oregon,** by L.S. Cressman, H. Williams and A.D. Krieger. Unviersity of Oregon Monographs, **Studies in Anthropology** 3.

Cressman, Luther S., F.C. Baker, H.P. Hansen, P. Conger and R.F. Heiser.

1942 Archaeological Researches in the Northern Great Basin. **Carnegie Institution of Washington Publications** no. 538.

Jennings, Jesse D.

1957 Danger Cave. **University of Utah Anthropological Papers** no. 27.

Loud, Llewellyn L. and Mark R. Harrington

1929 Lovelock Cave. **University of California Publications in American Archaeology and Ethnology** 25(1):1-183.

Mildner, Michael P.

1974 Descriptive and Distributional Notes on Atlatls and Atlatl Weights in the Great Basin. **Great Basin Atlatl Studies,** by T.R. Hester, M.P. Mildner and L. Spencer. pp. 7-27. Ramona: Ballena Press Publications in Archaeology, Ethnology and History no. 2.

Neuman, Robert W.

1967 Atlatl Weights from Certain Sites on the Northern and Central Great Plains. **American Antiquity** 32(1):36-53.

Orr, Phil C.

1972 The Eighth Lake Lahontan (Nevada) Expedition, 1957. **National Geographic Society Research Reports, 1955-1960.** pp. 123-126. Washington: National Geographic Society.

Peets, Orville

1960 Experiments in the Use of Atlatl Weights. **American Antiquity** 26(1):108-110.

Tuohy, Donald R.

1982 Another Great Basin Atlatl with Dart Foreshafts and Other Artifacts: Implications and Ramifications. **Journal of California and Great Basin Anthropology** 4(1):80-106.

White, C.M.

n.d. Personal Communication. 10 April 1987.

AN ABORIGINALLY WORKED BRASS BIPOINT FROM THREE ISLAND CROSSING

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Some years ago Don E. Crabtree (1968) reported on a number of aboriginally produced projectiles and tinklers, or bangles, from the Oregon Trail site along the Snake River in southcentral Idaho. The artifacts were made of iron and laminated metal and had been beaten and shaped with stone tools. Crabtree suggested that the metals were scavenged from Euro-American locations and represented the acculturation of stone to metal as a working medium.

In 1986, Boise State University conducted its archaeological field school at the site of Three Island Crossing (10-EL-294) near Glenns Ferry (see Fig. 1). The location, now within the boundaries of the Three Island State Park, is a late period Shoshonean site approximately 50 meters from the Oregon Trail Crossing at the Three Island locality. Archaeological excavations documented an aboriginal occupation dating from c. 1000 B.P. into the Historic Period. The Historic Period is identified by the recovery of glass trade beads.

During the excavation, Mrs. Ester Pusey of Glenns Ferry, who originally recorded the site, presented the author a metal bipoint collected earlier form the surface (see Figure 2). The object measures 6.2 × 2.4 × 0.1 cm, with a generalized diamond shape. The greater portion of the blade element extends from a point approximately ⅓ the length of the blade. The surface is somewhat undulating with slightly pitted areas and some evidence of cold hammer preparation. Microscopic examination (20 ×) noted diagonal striations from the left lateral margin on the dorsal and ventral surfaces. The right lateral margins show relatively deep striations parallel to the edge. These striations suggest the edges have been bevelled. The basal or proximal end is slightly thicker, with straight edges. The tip or distal portion is well smoothed. A crack 0.5 cm in length is found 3.8 cm from the proximal end and appears to be the result of reworking. The projectile is brass. A scanning electon microscope probe at Boise State University assayed the composition as 75 percent copper and 25 percent zinc.

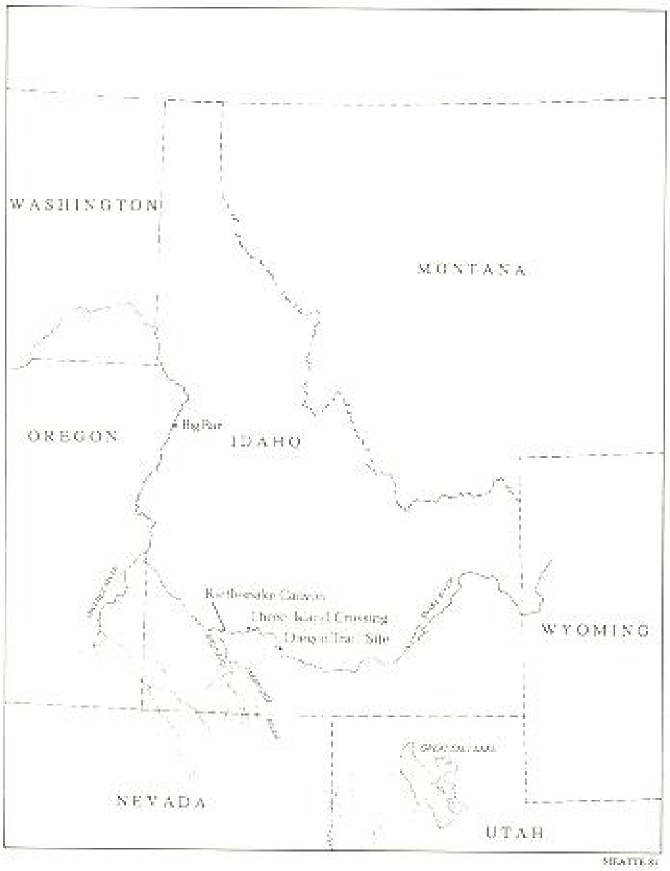

Figure 1. Map Showing the Locations of Sites Noted in the Text.

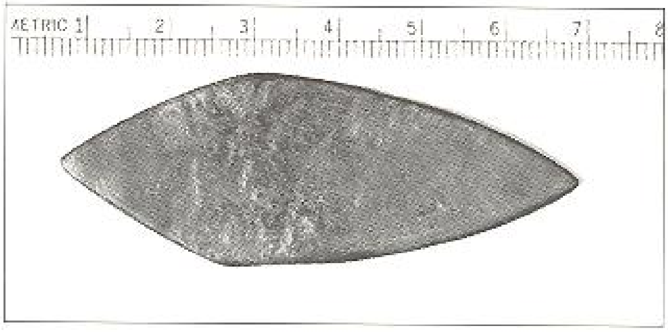

Figure 2. Brass Bipoint from Three Island Crossing.

Trade in native and European copper was historically common in the Northwest and Great Basin (see Griswold 1954; Hughes and Bennyhoff 1986) and has been documented prehistorically at such locations as Big Bar in Hells Canyon (Caldwell and Mallory 1967:95) and at the Rattlesnake Canyon cremation site near Mountain Home, Idaho (Bonnichsen 1964). Copper items, however, are quite rare and brass objects have not been reported locally. Such materials should be expected in Idaho contexts, as such early explorers as Ogden transported brass objects, including rings and copper kettles (Ogden in Williams 1971, see Appendix D, pp. 182-188).

A further note concerns the possible misidentification of copper and brass objects. Though copper, owing to its availability and malleable nature, may have been more commonly utilized, brass may have been regularly worked. The Three Island Crossing specimen appeared to be copper. Indeed, our experience with the specimen leads us to conclude that failure to clean and assay composition may lead to misidentification of some objects.

Metal Artifacts representing the acculturation described by Crabtree (1068:39) are quite rare in southern Idaho. In this regard, the aboriginally worked brass obappeared to be copper. Indeed, our experience with the specimen leads us to conclude that failure to clean and assay composition may lead to misidentification of some objects.

Metal artifacts representing the acculturation described by Crabtree (1968:39) are quite rare in southern Idaho. In this regard, the aboriginally worked brass object from the Three Island Crossing locality is important. Its discovery furthers the documentation of early historic acculturation of stone to metal as a working medium.

References

Bonnichsen, Robson
1964 The Rattlesnake Canyon Cremation Site, Southwestern Idaho. **Tebiwa** 7(1):28-38.

Caldwell, Warren W. and Oscar L. Mallory
1967 Hells Canyon Archaeology. Smithsonian Institution, River Basin Surveys, **Publications in Salvage Archaeoogy**, no. 6.

Crabtree, Don E.
1968 Archaeological Evidence of Acculturation Along the Oregon Trail. **Tebiwa** 1(2):38-42.

Griswold, Gillett
1954 Aboriginal Patterns of Trade Between the Columbia Basin and the Northern Plains. M.A. thesis, Montana State University.

Hughes, Richard E. and James E. Bennyhoff
1986 Early Trade. **Handbook of North American Indians,** vol. XI, Great Basin. Warren L. D'Azevedo (ed.) pp. 238-255. Washington: Smithsonian Institution.

Williams, Glyndar (Ed.)
1971 **Peter Skene Ogden's Snake Country Journal 1828-27-1928-29.** London: The Hudson's Bay Record Society.

THE DATING OF SALMO GAIRDNERII *AND NON-SALMONID REMAINS FROM NAHAS CAVE*

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Over the past several years there has been an increased interest in native fishing in southwestern Idaho. These interests focus on the nature and importance of salmon fishing as a cultural ecological adaptation (Pavesic 1978), aboriginal fishing technology (Meatte 1983), and the nutritional value of anadromous fishes (Plew 1983). Recently, there has been a growing interest in time depth of anadromous fishing by Shoshonean peoples (Pavesic 1986).

In this regard, dating of fish remains in southwestern Idaho contexts is based upon radiometric associations at three archaeological sites. These include Dry Creek Rockshelter in the Boise foothills (Webster 1978); Nahas Cave in the southcentral Owyhee Uplands (Plew 1980; 1981a); and 10-GG-1 on the Snake River near Bliss, Idaho (Plew 1981b). The radiometric associations suggest fishing activity for some 5,000-6,000 years.

In a previously published paper (Plew 1980), I reported the recovery of steelhead trout (*Salmo gairdnerii*), suckers *(Catostomus columbianus)*, and sculpins *(Cottus bairdii)* from Nahas Cave. These data were later combined with evidence from sites 10-GG-1 and 10-TF-352 in a 1983 publication concerning the nutritional potential of anadromous fish. In this regard, I have recently noted a point of confusion deriving from the tabulations in my 1983 paper. Clarification is significant enough in the context of recent concerns to merit correction.

My 1980 paper documenting the recovery of *Salmo gairdnerii* shows the specimens associated with a radiocarbon range between 2990 ± 70 B.P. (TX3636) and 350 ± 70 B.P. (TX3635) and cultural Zones II and III (Plew 1986:28). First, the date 2990 ± 70 B.P. (TX 3636) is correctly 2920 ± 70 B.P. (TX 3637). The date as well as the laboratory number were incorrectly printed. The number TX3636 is correctly associated with a date of 260 ± 50 B.P., not reported in the 1980 paper. Secondly, the arrangement of associated radiocarbon dates in Table 1 of the 1983 paper (see Plew 1983:60) gives the impression that *Salmo gairdnerii* is associated with a radiocarbon date of 5990 ± 170 B.P. This date was obtained from the 160-170 cm level within cultural Zone I near the base of the deposit (Plew 1986:29). The radiocarbon dates are listed in order of use rather than species association. The date is incorrectly printed and should read 4990 B.P., the age estimate for the 140-150 cm level (see Plew 1980:131). No fish remains were recovered form the 150-160 cm level of Zone I. The remains of *Catostomus columbianus* were, however, found in the 140-150 cm level. Therefore, the remains of *Salmo gairdnerii* date between 2920 ± 70 B.P. and *Catostomus columbianus* between c. 4990 B.P. and 260 ± 50 B.P. (see Table I).

Finally, the association of excavation levels with radiocabon dates is incorrect in the 1980 paper. The 40-50 cm level is associated with dates of 1100 ± 80 B.P. (TX3642), 1410 ± 200 B.P. (TX 3643) and an aberrant date of 300 ± 70 B.P. (TX3639). Remains of *Salmo gairdnerii* occur in level 50-60, not 60-70, as appears in the 1980 publication. All corrections appear in Table I.

This paper corrects certain typographical/printing errors appearing in my 1980 paper on fish remains from Nahas Cave and carried over to a 1983 publication concerning the nutritional value of anadromous fish. Though the corrections noted here do not substantially alter the chronology of use of anadromous and non-salmonid fishes, it should clarify the data in regard to specific chronological problems.

TABLE I

RADIOCARBON DATES FOR FISH REMAINS FROM NAHAS CAVE

Species	Excavation Level	Radiocarbon Dates
Salmo gairdnerii	20-30 cm	260 ± 50 B.P.[1] (TX3636) 350 ± 70 B.P. (TX3635)
Salmo gairdnerii	40-50 cm	1100 ± 80 B.P.[2] (TX3642) 1410 ± 200 B.P. (TX3643) 300 ± 70 B.P. (TX3639)
Salmo gairdnerii	50-60 cm	2920 ± 70 B.P. (TX3639)
Cottus bairdii	60-70 cm	
Catostomus columbianus	0-10 cm	260 ± 50 B.PB (TX3636)
Catostomus columbianus	40-50 cm	1100 ± 80 B.P.[2] (TX3542) 1410 ± 200 B.P. (TX3543) 300 ± 70 BLP.[3] (TX3639)
Catostomus columbianus	60-70 cm	
Catostomus columbianus	70-80 90-100 cm	
Catostomus columbianus	140-150 cm	

[1]Previously unreported date. TX3636 originally reported as 2990 ± 70 B.P.

[2]Sample from hearth feature extending from c. 45-55 cm below datum.

[3]Aberrant sample found near rodent burrow. Not reported in 1980 or 1983. (see Plew 1986).

REFERENCES

Meatte, Daniel S.
1983 Distribution and Variation of Native Fishing on the Western Snake River Plain. Paper Presented and the 36th Annual Northwest Anthropological Conference, Boise.

Pavesic, Max

1978 Ethnohistory and Cultural Ecology: A Study in Shoshonean Salmon Fishing. Paper Presented at the 31st Annual Northwest Anthropological Meeting, Pullman.

1986 Anadromous Fish in Time: A Study in Applied Archaeology. Paper Presented at the 28th Annual Meeting of the Western Association of Sociology and Anthropology, Boise.

Plew, Mark G.

1980 Fish Remains from Nahas Cave: Archaeological Evidence of Anadromous Fishes in Southwestern Idaho. **Journal of California and Great Basin Anthropology** 2:129-132.

1981a A Preliminary Report on Archaeological Excavations at Nahas Cave. **Idaho Archaeologist** 4(3):1-7.

1981b Archaeological Test Excavations at Four Prehistoric Sites in the Western Snake River Canyon near Bliss, Idaho. **Project Reports** no. 5., Idaho Archaeological Consultants, Boise.

1983 Implications of Nutritional Potential of Anadromous Fish Resources of the Western Snake River Plain. **Journal of California and Great Basin Anthropology** 5(1-2):58-65.

Webster, Gary S.

1978 Dry Creek Rockshelter: Cultural Chronology in the Western Snake River Region of Idaho ca. 4150 BP-1300 BP. **Tebiwa** (NS) no. 15.

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