Desert Archaeology... New Beginnings, A Look Back

For much of a decade we have labored to reveal the secrets of the desert's prehistory from a corporate base on the California coast. But the roots that we were sinking locally have recently brought forth Desert Archaeology. This is a tale of two new organizations and it requires a little time to tell. So read on to find out what has changed and what will stay the same.

The first organization is the Center for Desert Archaeology. The Center is an Arizona nonprofit corporation, and it will carry on the Archaeology in Tucson membership program. It will also publish and distribute archaeological reports, carry out grant-funded research, and be actively involved in public education. If you are currently an Archaeology in Tucson member, you are already part of the Center for Desert Archaeology. If not, there is a membership application on the back page of this Newsletter.

The second organization is Desert Archaeology, Inc. Desert Archaeology, Inc. is a new profit corporation that will carry out contracts for archaeological research and historic preservation. We will continue to focus on the southern Arizona desert, but may occasionally venture outward to other areas within the arid Southwest. Both organizations will work closely together in order to continue and expand the diversity of activities and the exciting research that we have been involved in for the past eight years.

In the rest of this Newsletter, we provide an overview of what came before by reviewing some of the history of the Arizona Division of the Institute for American Research. In the final section of the Newsletter we look ahead at some of our immediate plans.

Sandwiched between these two sections is a guest contribution by Watson Smith on the digraph "æ," an odd little combination of letters that actually caused a good deal of caustic debate during the revolution of the "New Archaeology" in the 1960s. Watson's article provides a rationale for carrying forward one piece of the past unchanged into the future. Also, when all around is in a state of flux, a healthy sense of humor is always appropriate.

AN INSTITUTE RETROSPECTIVE

The Institute for American Research, a nonprofit corporation, was founded in California in 1968. In 1982, the Institute opened its Arizona Division to do archaeological research, help preserve archaeological sites, and provide education about the archaeology of this region. Directing and managing the Arizona Division were principal investigator William H. Doelle and projects manager Linda L. Mayro.

Eventually other archaeologists, including Henry D. Wallace, Sherry Jerminian, Allen Dart, Frederick W. Huntington, Lisa G. Eppley, Mark D. Elson, Mary Bernard-Shaw, Douglas B. Craig, Deborah Swartz, James Heidke, James P. Holmlund, and Patricia Castalia helped build the Institute's reputation as an organization dedicated to the study of Arizona archaeology. This review highlights archaeological research and preservation activities, and our efforts to involve the public in the archaeology of Arizona.

Major Field Projects

Important archaeological research projects conducted by the Institute during its eight years in Arizona included excavations, large scale surveys to locate and record sites, and detailed studies of rock art, all of which are still yielding major new interpretations of the peoples who once dwelt in southern Arizona.

The Arizona Division's first excavation project, conducted west of Tucson in 1982 at the village of Nolie, exposed the remnants of late 19th and early 20th century Tohono O'dham Indian houses. During this project, interviews with the oldest residents of the village confirmed that the houses had been last occupied by an elderly...
O'odham woman, who used them for only part of each year. The historical data helped to explain many unusual characteristics revealed by the archaeology.

In December 1982 the Institute began the first of several projects at the Valencia site, a Hohokam ballcourt village in the southern Tucson Basin. Although Valencia was inhabited primarily by the Hohokam between AD. 450 and 1150, excavations produced evidence that Archaic period peoples initially lived there between 1000 B.C. and AD. 200. Furthermore, the Valencia site yielded the first known Clovis point from the Tucson Basin, indicating that Paleoindian hunters had probably been present about 11,000 years ago at the end of the last Ice Age.

Clovis point, Valencia site.

In addition, the 1982-1983 Valencia project provided insights into how the structure of Tucson-area Hohokam communities changed over the centuries. The project was also the first in a still-continuing series of studies investigating how Hohokam pottery styles changed over time. By recognizing particular pottery styles that were in use at various times, it has been possible to interpret more precisely when particular archaeological sites were occupied by the Hohokam.

In 1983 the Arizona Division expanded its archaeological investigations into the northeastern part of the Tucson Basin. An 800-acre site survey in the foothills of the Santa Catalina Mountains that year grew into a research effort that culminated in 1984 with the excavation of a living site that was occupied sporadically between 3500 B.C. and AD. 450. This site, called La Paloma after the modern resort property where it was located, was relatively small; nonetheless, it was significant because it provided new data on how people of the Middle and Late Archaic periods utilized foothills environments for hunting, foraging, and even burying their dead.

Middle Archaic point, La Paloma.

In 1984 and 1985 the Institute focused again on Hohokam studies in its undertaking of two significant excavation projects in Tucson, one at the West Branch site near the foot of the Tucson Mountains, the other at the Tanque Verde Wash site in the eastern Tucson Basin. Of the more than 20 Hohokam pithouses excavated at each site, most dated to the Middle Rincon subphase, about AD. 1000-1100. Building on the results of the Valencia project, the West Branch and Tanque Verde Wash studies provided new information on the sequence of ceramic styles within the relatively short Middle Rincon subphase. The projects also led to new interpretations of how Hohokam households of that period were organized and on where they obtained many of their material necessities such as ceramic vessels and stone tools.

Examples of Early, Middle, and late Rincon Red-on-brown jars.

In 1987, 1988, and 1989 the Institute conducted the largest-scale, most systematic archaeological testing and excavation program ever to have been done at a single archaeological site in the Tucson Basin, as part of a multiple-site-investigation within the ever expanding limits of the modern-day community of Marana. Explored during this program were the archaeological sites named Los Morteros, Redtail, and Lonetree.

Cross-section of a Hohokam irrigation canal located east of Los Morteros.

The main part of the 1987-1989 program focused on the ballcourt village site of Los Morteros, one of the foremost Hohokam communities of the Tucson area. The excavation information from the main residential area of Los Morteros, now being analyzed under the direction of Henry D. Wallace, shows that prehistoric households lived in separate "neighborhoods" that were dispersed over nearly a mile along the Santa Cruz River. This discovery is providing new insights into community organization for the Tucson area's largest Hohokam villages.

Outside of the residential area of Los Morteros, excavations directed by Mary Bernard-Shaw...
demonstrated convincingly that the Hohokam used irrigation canals in the middle Santa Cruz Valley. Many archaeologists had previously believed this was true, but firm evidence of the practice had been elusive before the Institute's discoveries. Mary Bernard-Shaw also took charge of the studies at the Redtail and Lonetree sites. These excavations provided new information on the early use of pottery in the Tucson Basin and have resulted in the formal identification of a very early Hohokam redware pottery type, Tortolita Red. In addition, the Redtail site contained substantial evidence for the manufacture of turquoise beads. The turquoise source has not yet been located, but it is likely that it was relatively near the site.

During the Institute's final excavation project in Arizona, 13 ancient sites were investigated along Rye Creek, in the Tonto Basin (near Lake Roosevelt) some 60 miles northeast of Phoenix. Among the more exciting facets of the Rye Creek project was the unearthing of the earliest pithouse village known in that basin. The site contained several houses that dated to the Snaketown phase (pre-AD. 750) and even more that were inhabited during the Gila Butte phase (ca. AD. 750-850).

The project excavation results, now being analyzed under the guidance of Mark D. Elson of Desert Archaeology, indicate complex cultural connections between the tenants of the Tonto and the residents of the regions round about; that Rye Creek residents utilized different kinds of structures and occupation sites; and perhaps even that they carried out extensive mining and trade of the rare mineral argillite.

The ceramic-using people who lived along Rye Creek at first were affiliated with the Hohokam interaction network, but that affiliation shifted around AD. 1000 toward the Anasazi of northern Arizona. Still later, around 1300, another social shift brought the Tonto Basin under the influence of what has been called the Salado culture, an as-yet poorly understood manifestation that is one focus of the Rye Creek studies.

The 13 sites within the project area show a range of structural variability from dug-out pithouses to masonry-lined pithouses to above-ground masonry structures. Identification of this variability, together with the wide range of site types present in the area (pithouse and pueblo villages, farmsteads and seasonal field houses) promises a more accurate reconstruction of Tonto Basin settlement patterns than has been possible previously.

Finally, the project turned up evidence that the Rye Creek ancients were involved in extensive mining, use, and possibly trade of argillite, a red, shale-like, sedimentary rock that is available from a source along Rye Creek. Only two other sources of true argillite have been confirmed in Arizona, both in the upper Verde Valley. Argillite may have been considered a valuable commodity because it is suitable both for pigment and for manufacture of fine artifacts including beads, pendants, bowls, and long-handled censers.

Archaeological surveys have been a very important source of insights into the past. Surveys in the southern Tucson Basin allowed the Institute's archaeologists to demonstrate that Hohokam settlement patterns changed radically along the Santa Cruz River from the late Pioneer period (ca. AD. 450-750) through the late Classic period (AD. 1300-1450). Similarly, the Rancho Vistoso and Catalina State Park surveys in the northern Tucson Basin provided new understanding of the founding of early Hohokam villages in that area. They also showed that the villagers of the northern Tucson Basin interacted more closely than their neighbors in the southern part of the basin with the Hohokam who lived in the Salt and Gila valleys.

The Papago Water Supply and Gunsight Mountain surveys west of Tucson, in the Avra and Altar valleys, demonstrated dramatic shifts in the Hohokam population of these valleys through time. They also revealed evidence of local specialization in redware pottery production between AD. 1000 and 1100, and showed that the Hohokam of these valleys were more closely allied with the Hohokam of the southern Tucson Basin than with the Salt-Gila Hohokam.

The Institute's detailed studies of petroglyph sites in
the Picacho Mountains (between Tucson and Phoenix), conducted by Henry Wallace and James Holmlund, were published as part of the Institute's Anthropolical Papers series in 1986. The Picacho petroglyphs report appears on its way to becoming a classic in the literature of southern Arizona because it demonstrates for the first time that, with careful study, petroglyphs are datable.

Armed with this understanding, it was possible for Wallace and Holmlund to attribute different styles of rock art to the Archaic, Hohokam, and protohistoric (presumably Upper Piman) cultures of southern Arizona. This led them to the further determination that the medium of rock art was associated with a different social context for each of these three cultures. The dating of rock art styles, together with data on how boulders had been broken and displaced after petroglyphs had been pecked into them also provided a new means for recognizing prehistoric and historic earthquakes and for assessing the frequency that such events are likely to occur.

The techniques and results of the Picacho petroglyphs study formed the underpinnings for a detailed rock art study by the Institute in 1988 and 1989. This study took place in the Painted Rock Reservoir district near Gila Bend, where the bygone Hohokam culture had interfaced with the Patayan culture of the lower Gila and Colorado River valleys. Wallace and Holmlund surveyed and recorded 40 rock art sites at Painted Rock, and Wallace's subsequent analysis of data from this project resulted in the identification of yet one more distinct petroglyph tradition, tentatively attributed to the Patayan culture.

Besides major excavations and surveys, the Institute also conducted scores of smaller survey, testing, and mitigation projects in southern Arizona. Most of these were done under contracts with private firms or federal, state, county, and city governments, but several were grant-sponsored research projects. Another important aspect of the Institute's work was documentation of archaeological resources for long-term planning by the Arizona State Historic Preservation Office (SHPO). For example, in 1988 the Arizona Division provided the SHPO with documentation of all archaeological sites that had ever been recorded in Pima County, and developed research contexts under which all Pima County archaeological sites (and eventually, all sites in Arizona) could be managed in the future. And in 1989, the Arizona Division compiled a comprehensive report on prehistoric irrigation in Arizona, a study that is expected to be published by Arizona State Parks next year.

**Preservation Projects**

Another important theme of previous work has been a dedication to the preservation of archaeological sites. At the Valencia site, in addition to its major excavation project in 1982-1983, the Arizona Division later conducted other exploratory excavations to determine how far the site extended, so that the City of Tucson and State of Arizona could determine how much of their property could be developed without damaging the site's cultural material.

In 1988, to curtail damage that was being caused to the Valencia site by pothunters, the Institute convinced the State of Arizona, the City of Tucson, and private contributors to fund construction of a fence around the site. Signs were erected at that time to indicate that the Valencia site is protected by state law, and AIT members were recruited to help clean up litter at the site and to fill in many of the holes left by pot-hunters. And for the past couple of years, dedicated AIT members have spent a great deal of time monitoring the site for evidence of new pot-hunting activity.

A far-reaching facet of the Institute's site preservation program in recent years involved nominating archaeological sites and districts to the National Register of Historic Places in Washington, D.C. Listing on the National Register attests to the importance of an archaeological site or district, and tends to discourage development plans that would result in outright destruction of the listed property. As a result of its excavation and survey projects, and with the assistance of grants from the Arizona State Historic Preservation Office and other sources, the Arizona Division
succeeded in getting the Valencia site listed on the National Register in 1984.

Another 38 prehistoric and historic archaeological sites, including the impressive Romero Ruin, were officially listed in the Register as the "Sutherland Wash Archaeological District" as a result of our 1986 work in Catalina State Park. Our most recent nomination is expected to result in the National Register listing of 123 archaeological sites comprising the Gunsight Mountain Archaeological District, southwest of Tucson, in late 1989 or early 1990.

Currently Desert Archaeology is using volunteers and a grant from the State Historic Preservation Office to record archaeological sites in the Coyote Mountains near Kitt Peak. Those sites will be nominated as a new National Register district next year.

Public Outreach

The Arizona Division endeavored to share information about Arizona's past to the general public as well as to the professional archaeological community. The Institute organized numerous guided tours for the general public, for school groups, and for Indian communities during its West Branch site, Tanque Verde Wash site, and Papago Water Supply survey projects.

Museum-quality archaeological exhibits and displays were built at two major housing developments (Fairfield Communities' Coronado Ridge and the Del E. Webb Corporation's Sun City Vistoso), Tucson City Hall, the Pima County Department of Transportation, and Tohono O'odham Reservation District offices. And the Arizona Division was the primary archaeological consultant for the design of the Paleoindian rockshelter exhibit that has been on display at Tucson's Old Pueblo Museum for the last several years.

Foremost among the Institute's public outreach programs, though, was Archaeology in Tucson. The newsletter that you are reading originated through this program in mid-1986 and continues to be published four times a year. AIT members were treated to demonstrations by local artists Paul and Laurel Thornburg on how prehistoric pottery was manufactured, painted, and fired.

Most importantly, Archaeology in Tucson provided its members with opportunities to help conduct intensive site surveys and excavations directed by professional archaeologists. The services volunteered by AIT members were essential to the success of the Gunsight Mountain.

survey and the excavations at Los Morteros. Most recently, funding by the Wolfswinkel Group of Mesa was supplemented by volunteer efforts by both Archaeology in Tucson members and the Foundation for Field Research of San Diego in order to test Honey Bee village.

Finally, there has been a strong commitment to publication of our research on Arizona archaeology. To disseminate the results of all studies, two respected publications series were instituted. The "Anthropological Papers" series presents major studies of the archaeology of southern Arizona. A "Technical Reports" series made available the results of most of the Institute's other archaeological studies, from small-scale surveys for Pima County road realignments to surveys and excavations of the Redtail and Lonetree sites. Both the Anthropological Papers and Technical Reports will continue under the Center for Desert Archaeology.

ANTHROPOLOGICAL PAPERS


No. 5 Out of Print. Archaeological Investigations at the West Branch Site: Early and Middle Rincon Occupation in the Southern Tucson Basin. 1986. Frederick W. Huntington.

No. 6 $12.00. The Petroglyphs of the Picacho Mountains, South-central Arizona. 1986. Henry D. Wallace and James P. Holmlund.


Report on the Results of an Etymological Research Project:
"The Functions of Digraphs and Ligatures in the Effective Destruction of Mental Equilibrium in the Human Mind (if any)."

By Watson Smith*

An exhaustive and exhausting program of research has been carried out in pursuit of the apparently ineluctable problem of when and why is the Digraph. The results thereof are summarized below:

In the New English Dictionary (the Oxford Dictionary) this symbol is said to have originally been two different things, in other words an alphabetical schizoid. First, it was in Old English a simple vowel, intermediate between a and e. When short it was like a in man, when long like the "American" pronunciation of the vowel sound in bear, hair, etc. After about the year 1100 the short Æ was usually replaced by a (sometimes by e); the long Æ persisted into the 13th century, but was later replaced by e or ee.

The digraph was reintroduced in the 16th century in words derived from the Latin having æ or Greek having ai. But whenever such a word became thoroughly English the æ became e as in edify or either.

The æ now remains only in 1) Greek and Latin proper names, as Æneas, Caesar, and even these, when familiar, often take e; 2) words belonging to Roman or Greek antiquities as ædile, ægis; 3) scientific or technical terms, as ætiology, æstivation, etc., and even these e when popularized, as in phenomenon.

In the Oxford Dictionary the initial æ is used only in: 1) Early English words that became obsolete before having changed to e; Greek and Latin words that became obsolete before having changed to e, or that have not changed since, because they indicate ancient things, as ægiptos, ætiology. All other words are listed under the initial E.

As a plural suffix æ is used with Latin nouns of the first declension ending in -ai; also with Romanized forms of the Greek plural -ai of nouns in -e, -a, -es, as. It is retained in English words not naturalized or merely in technical use, as alge, laminae, larvæ, nebulae. It is used also in proper names from Classical antiquity, as Heraclides, and in some names of families and orders of plants, as Felidæ, Rosaceæ, etc. In certain other words it varies with the English forms in -as, as mathematical formulæ, but theological formulas. In all words thoroughly popularized it yields to -as, as arenas, fuchsis, hyenas, floras.

In the Century Dictionary, essentially the same discussion appears but in abbreviated form, apparently having been condensed from the exposition in the Oxford Dictionary. A few variations appear, however:

As to terminal æ, it is said: "Sometimes retained in English as in formulae, nebulae, vertebræ, etc., in some cased alongside a regular English plural, as in formulas, nebulas, etc."

The form archaeology is used in both the Oxford and Century Dictionaries. In each the word formula is listed as having either -ae or -as for the plural suffix, with the former preferred. Among the examples given, mathematical formulæ is listed in both.

Funk and Wagnalls' New Standard Dictionary gives the plural of formula as either formulas or formulae, with as preferred. And all examples have -as.

Webster's New International Dictionary gives the plural of formula as either -as or -ae (without ligature), with as preferred.

As to "the two different styles of writing the digraph character, Webster's says there is no definitive choice but that it is "usually written with separate letters, but also often with a ligature." All examples and all listings in the main vocabulary, either in the bodies of words or as suffixes, are spelled without the ligature, including archaeology.

All of which leaves us up a very tall tree.

Quo Vadis?

*Watson Smith has been active in Southwestern archaeology since the 1930's. He is a resident of Tucson, and has had a long affiliation with the Peabody Museum of Harvard University. He participated in such major archaeological projects as the Rainbow Bridge-Monument Valley expedition, and the Peabody Museum excavations at the early historic Hopi site of Awatovi and in the Quemado area of western New Mexico. In 1983 he was awarded the A V. Kidder Medal for outstanding contributions to American archaeology by the American Anthropological Association.

This essay was written about 1951 and is included in Watson Smith's autobiography, which is entitled One Man's Archaeology. Raymond Thompson, Director of the Arizona State Museum, is currently editing a volume that reprints ten of Watson Smith's essays. It is titled When is a Kiva? and will be available through the University of Arizona Press in 1990.

We thank Watson Smith for providing this brief essay and the accompanying poem reprinted on the top of the next page.
Another way to help out is to consider upgrading your membership to the next higher level. Many of you will be receiving your membership renewal notices at about the same time that this issue of the Newsletter comes out. Review all of the contributions that have been made to southern Arizona archaeology over the past eight years, and then carefully consider how you can play an important part in continuing this active research, education, and preservation program in the future. A contribution of a few extra dollars by the majority of our membership can make a big difference.

Lecture Series

To kick off the 1990 membership drive, lectures are planned for January, February, and March. Dates, and lecture locations will be announced in early January.

The Ancient Hohokam of Southern Arizona. William Doelle, Executive Director of the Center for Desert Archaeology, will give an overview of the prehistoric farmers that adapted so well to the Sonoran Desert of southern Arizona. This lecture will be offered at three times and locations during the month of January 1990.

Petroglyphs of the Southern Arizona Desert. Henry Wallace, Research Archaeologist with the Center for Desert Archaeology, will illustrate the diversity and beauty of the prehistoric rock art in the desert areas of southern Arizona in February 1990.

New Insights into the Archaeology of the Tonto Basin. Mark Elson, Research Archaeologist with the Center for Desert Archaeology, just returned from four months of fieldwork in the Tonto Basin. New insights into this little known area are already emerging and will be shared during a lecture in March 1990.

Field Trip Opportunity for Members

In late February Henry Wallace and Chris Downum will lead a field trip to Cerro Prieto and nearby sites located about 40 miles northwest of Tucson. This will be an opportunity to see the major Classic period hillslope village of Cerro Prieto as well as a major petroglyph complex. This trip will be for Archaeology in Tucson members only. More information will be provided early next year.

Field Survey Opportunity for Members

In February, a program of archaeological survey will be initiated in the northern San Pedro valley, northeast of Tucson. On two Saturdays of each month, up to ten members can spend the day helping to locate and record archaeological sites. More details will be provided early next year. These opportunities are for members only.
## Membership Application

### The Center for Desert Archaeology

The Center for Desert Archaeology is a nonprofit, research and educational organization that specializes in the study of the archaeology and history of desert regions. Our primary research focus has been southern Arizona.

*Archaeology in Tucson* is the membership program of the Center for Desert Archaeology. The *Archaeology in Tucson* Newsletter is published quarterly, and is one of the benefits that members receive. Lectures, site tours, discounts on publications, and participation in archaeological field projects are additional membership benefits. Memberships run for a full year from the time they are received.

**Annual Membership Rates**

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(Formerly the Arizona Division of the Institute for American Research)