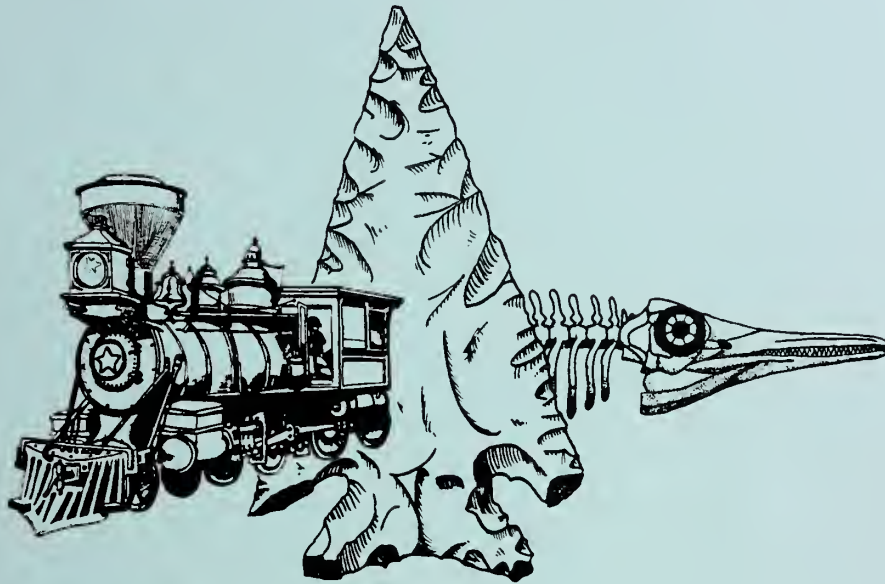




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CONTRIBUTIONS TO THE STUDY OF CULTURAL RESOURCES



ARCHAEOLOGICAL STUDIES IN THE
CORTEZ MINING DISTRICT, 1982

Donald L. Hardesty
Eugene M. Hattori

TECHNICAL REPORT NO. 12

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- *No. 12 Archaeological Studies in the Cortez Mining District, 1982. Donald L. Hardesty and Eugene M. Hattori (1983). 69 pp.

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FOREWARD

This volume, "Archaeological Studies in the Cortez Mining District, 1982" by Donald L. Hardesty and Eugene M. Hattori, presents the results of the second field season of a three year project jointly sponsored by the Bureau of Land Management and the University of Nevada, Reno. The earlier volume resulting from this project, "Archaeological Studies in the Cortez Mining District, 1981" (1982), described the findings of the first field season's efforts and provided relevant archival information concerning the project study area. This second volume describes the type and distribution of sites and features identified from the more systematic field survey undertaken in 1982. Also described are the key artifact types recovered from excavations, including Overseas Chinese Culture ceramics. Most importantly, several behavioral models are posed for future investigations including the explanation for Overseas Chinese behavior at the frontier mining center of Cortez and the definition of patterns of interaction between 19th century Victorian Culture and the various folk cultures introduced into the region. These models helped guide the third field season of work concluded in the summer of 1983.

By their nature, historic mining sites are located in geologically mineralized locations which often attract renewed exploration and development activities. Consequently, much of Nevada's heritage can be lost inadvertently in a brief amount of time. The Cortez project demonstrates the anthropological data potential of these sites and highlights the research questions that may be asked of the data.

Richard C. Hanes
Nevada BLM State Archaeologist
Reno

December, 1983

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ARCHAEOLOGICAL STUDIES IN THE CORTEZ MINING DISTRICT

1982

by

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and

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Prepared By

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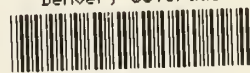
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TABLE OF CONTENTS

INTRODUCTION	1
RESULTS OF THE 1982 ARCHAEOLOGICAL SURVEY	3
Survey Design	4
Description of Sites Located by the 1982 Field Survey	5
Pinyon-Juniper	8
1. Locus 1-2	8
2. Locus 1-3	8
3. Locus 1-4	8
4. Locus 1-5	8
5. Locus 4-1	11
6. Locus C-1	11
Ore Body	11
1. Locus A-3	11
2. Locus 2-4	13
Upper Cortez Gravity Center	13
1. Locus 1-1	13
2. Locus 4-2	13
3. Locus 4-3	14
4. Locus 2-1	14
5. Locus 2-2	14
6. Locus 2-3	14
7. Locus 3-1	16
8. Locus 3-2	16
9. Locus A-1	16
10. Locus B-1	16
Alluvial Flats	17
1. Locus E-1	17

2. Locus E-2	17
3. Locus F-1	17
4. Locus F-2	17
Consolidated Cortez Mill Gravity Center	18
1. Locus A-2	18
Charcoal Makers in the Pinyon Juniper Zone: A Specific Land Use Model	18
1982 SHOSHONE WELLS EXCAVATIONS	24
Dugouts	24
Dugout S-35	24
Dugout S-42	25
Adobes	
Adobe S-9	26
Adobe S-13	27
Adobe S-43	28
Wooden Frame Structures	28
Wooden Frame Structure S-14	28
Pits	29
Pit P-2	29
Artifacts	30
Celadon	31
Four Seasons	31
Swatow	34
Chinese Brownware	34
Green Glazed Stoneware	37
Green Brown Mottled Stoneware	38
Pinkish Gray Stoneware	39
Container Lid	39
Opium Pipe Bowl	40

John Edwards Ironstone	40
Ironstone with Dark Red Transfer Print	40
White Clay Tobacco Pipes	40
Chinese Opium Containers	41
EuroAmerican Ammunition	41
Chinese Ink Stone	43
VARIABILITY AND CHANGE IN THE CORTEZ CHINESE COMMUNITY	44
Models of Adaptive Change	44
The Sojourner Model	45
Acculturation	46
Models of Cultural Drift	48
AN ARCHAEOLOGICAL MODEL OF VICTORIANISM ON THE NEVADA MINING FRONTIER	54
Victorianism in the Cortez District	54
The Classic Victorian Sphere	54
The Sojourner's Sphere	55
Folk Culture Spheres	58
Synthetic Frontier Culture	59
The Cult of Domesticity	60
Conspicuous Consumption	61
Temperance	62
Rationality and Order	63
Conclusions	64
LITERATURE CITED	65

LIST OF FIGURES

<u>Figure</u>	<u>Caption</u>	<u>Page</u>
1	Location of 1982 Survey Transects	6
2	Locus 1-2, A Charcoal Pit	9
3	Locus 1-3, A Charcoal Pit	9
4	Locus 1-5, A Possible Charcoal Kiln	10
5	Locus 1-5, A Possible Charcoal Kiln	10
6	Locus 4-1, A Geophysical Prospect	12
7	Locus 1-1, A Domestic Trash Scatter	12
8	Locus 4-2, A Domestic Trash Scatter with Chinese Artifacts	15
9	Locus 4-3, A Domestic Trash Scatter	15
10	Chinese Ceramics, Celadon Bases and Basal Markings	33
11	Chinese and Euro-American Ceramics	35
12	Chinese and Euro-American Ceramics	36
13	Metal and Stone Artifacts	42

LIST OF TABLES

<u>Table</u>	<u>Caption</u>	<u>Page</u>
1	Sites Located by the 1982 Cortez Survey	7
2	Classification of Artifacts from 1982 Project	32
3	A Model of Stylistic Drift in the Cortez District	51

INTRODUCTION

The Cortez Mining District is situated at the northern end of Grass Valley, approximately halfway between Austin and Battle Mountain, Nevada (Hardesty and Hattori 1982: Figure 1). Renewed mining activity in the district led the Bureau of Land Management, Battle Mountain District, to sponsor an inventory and evaluation of threatened cultural resources, especially the archeological site of Lower Cortez or Shoshone Wells. Phase 1 of the project was completed during the summer of 1981 and a progress report prepared during the following year (Hardesty and Hattori 1982). The contract was awarded to the University of Nevada, Reno; Donald L. Hardesty was the Principal Investigator. Phase 2 of the Cortez Project was awarded to the same institution and the same Principal Investigator. Field work took place during the summer of 1982 as part of the UNR summer field school in archaeological methods. Hardesty and Eugene M. Hattori (Desert Research Institute) supervised the work; Laurel Crittenden and Mary Panelli assisted. Members of the field team included Leslie Hill, Jessica Price, Terry Holland, and Cathy Fulkerson.

This progress report documents the Phase 2 investigations in the Cortez Mining District. Part 1 of the report describes the sites located by the survey and outlines a model of charcoal making behavior. Part 2 discusses the 1982 excavations at Shoshone Wells, along with a summary description of the major artifact categories. The remainder of the report outlines a series of models of behavior intended to direct archaeological research in the Cortez District.

The chapter on "Variability and Change in the Cortez Chinese Community" is a revised version of a paper presented by Donald L. Hardesty at the 1983

annual meeting of the Society for Historical Archaeology in Denver, Colorado. At the same meeting, Donald L. Hardesty and Eugene M. Hattori presented the paper "An Archaeological Model of Victorianism on the Nevada Mining Frontier." The chapter by the same name in this report is a revised version of that paper.

Many people contributed to this project. The authors particularly wish to thank Roberta McGonagle and Tony Lesperance for their assistance.

RESULTS OF THE 1982 ARCHAEOLOGICAL SURVEY

In the 1981 progress report (Hardesty and Hattori 1982), a preliminary model of land use patterns was developed for the Cortez mining district. This model was based on a non-systematic survey of archaeological sites in some parts of the district and on a study of documentary records. Several land use zones were identified in the model, including the exposed ore body, hydrologic features, the alluvial bottomlands, the pinyon-juniper forest, several "gravity centers" such as mills and nucleated settlements, and the salt marshes at the northern end of Pleistocene Lake Gilbert. Somewhat similar land use zones were defined for the Comstock mining district (Hardesty, Firby, and Siegler 1982).

In order to more fully develop an accurate model of land use patterns for the district, a team of UNR students and the Principal Investigator conducted a systematic field survey of archaeological sites in part of the district. The survey covered approximately ten percent of the pinyon-juniper and alluvial bottomland zones. Together, these zones make up the vast majority of the Cortez district. In addition, some survey work was done on the periphery of the settlement of Upper Cortez, the largest gravity center in the district. The primary purpose of the 1982 survey was to collect information about settlement patterns and other historic land use activities in the pinyon-juniper and alluvial bottomland zones that could be used to refine the preliminary model. Survey activities were limited to these two zones because both were virtually unknown archaeologically and because at least ten percent of the other land use zones had been surveyed, howbeit unsystematically. We felt that this additional information would allow sufficient refinement of the land use model to make possible the identification of specific goals for a future

field survey to collect a larger sample.

SURVEY DESIGN

A ten percent sample size was selected for the 1982 field survey, mostly because of the expected geographical dispersion of sites in the pinyon-juniper and the alluvial flats zones and because of the expected site variability in other zones. We anticipate that a larger sample size may be demanded in the future; however, this decision must be made on the basis of redundancies identified in the 1982 survey.

The shape and size of sampling units is another critical problem in the design of archaeological field surveys (e.g., Mueller 1975). For our purposes, the characteristics of sampling units are tied to what is already known about land use activities. Land use zones in which human activities are expected to be rather randomly distributed, such as the pinyon-juniper and alluvial flats, can be best surveyed with randomly-placed linear transects. In contrast, gravity centers which "attract" human activities are best surveyed with circular quadrats radiating out from the center. Such quadrats are also appropriate for springs and other "point" hydrologic zones. For these reasons, randomly-placed linear transects were selected for our survey of the pinyon-juniper and alluvial flats zones. And for the same reasons, a circular quadrat was used to survey the region around Upper Cortez.

Another practical field problem with designing a field survey is translating a theoretical sampling framework into something that has ground workability. Perhaps most difficult is conducting a survey in a forested region such as our pinyon-juniper zone. The presence of cleared mining claim lines in the Cortez district made the job somewhat easier. These lines are quite visible on the ground and are oriented approximately

north-south and east-west; furthermore, they are spaced about 1,000 feet apart in a grid-like system that can be treated as "unbiased" for purposes of an archaeological survey. For this reason, the linear transects used to survey the pinyon-juniper and alluvial flats zones follow the mining claim lines. Figure 1 shows the location of the transects. The four claim lines closest to Upper Cortez in both a north-south and an east-west direction were selected as transects. Transects 1-4 were the north-south claim markers. The first two (1 and 2) were surveyed by teams of two; each member of the team walked 50 feet away from opposite sides of the claim line. Transects 3 and 4 were surveyed by a two-member team walking 50 feet apart on the same side of the claim marker and then returning on the opposite side, making a total transect width of 200 feet. Transects A-D were the east-west claim markers. All of these were surveyed by teams of two; each member of the team walked 50 feet from opposite sides of the transect. The total transect width was therefore 100 feet.

DESCRIPTION OF SITES LOCATED BY THE 1982 FIELD SURVEY

Table 1 tabulates the archaeological sites located by the survey. Both inferred site function and land use provenience are given. Most of the sites are trash scatters associated with domestic activities or domestic structures. Nearly all of these were located in the alluvial flats next to the settlement of Upper Cortez. The next largest site function category was charcoal pits, all of which occurred in Transect 1 radiating approximately north from the Tenabo Mill toward the Nevada Giant lode. Finally, an adit complex and an industrial trash scatter were located close to the Nevada Giant lode at the east end of Transect A. What these sites mean for our understanding of settlement patterns in the Cortez district will be discussed later in this section. A more complex site description by land use zone follows.

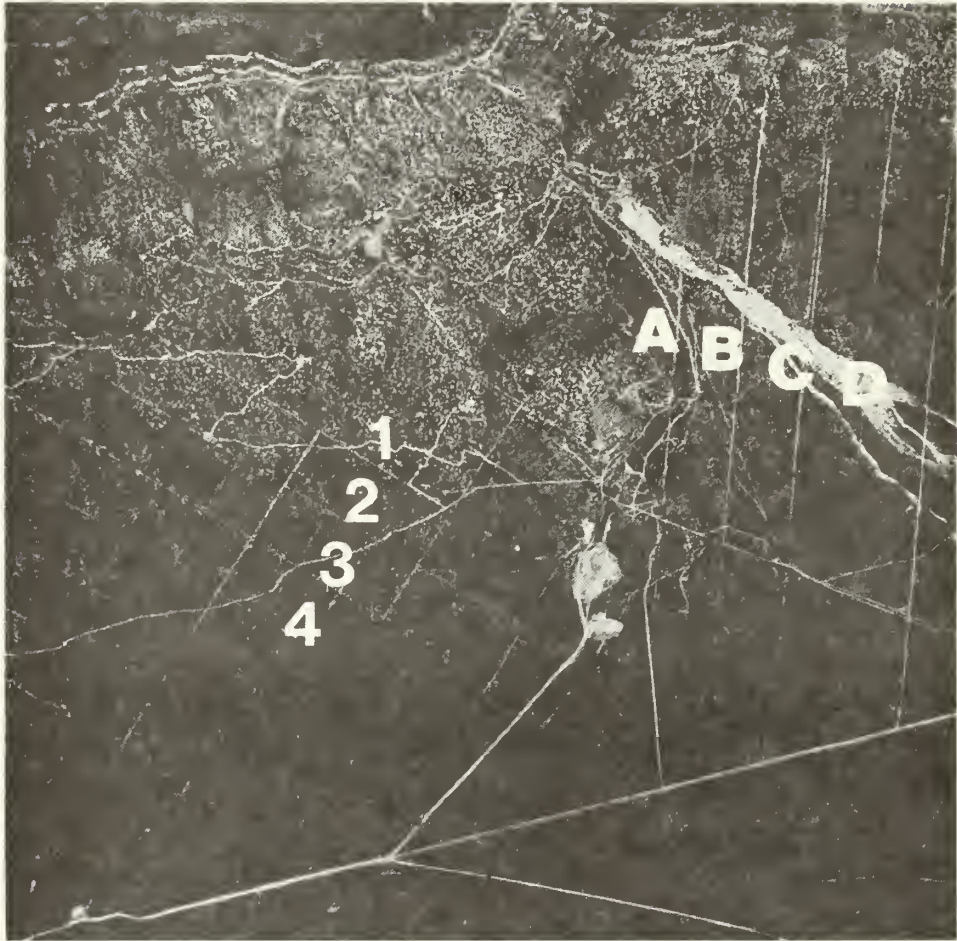


Figure 1. Location of 1982 Survey Transects.

TABLE 1: SITES LOCATED BY THE 1982 CORTEZ SURVEY

Land Use Zones	Domestic Scatters	Domestic Structures	Charcoal Pits	Adits	Industrial Scatters
Pinyon-Juniper	2	-	4	-	1
Ore Body	-	1	-	1	-
Upper Cortez Gravity Center	9	1	-	-	-
Consolidated Cortez Gravity Center	-	-	-	-	1
Alluvial Flats	1	3	-	-	-

Pinyon-Juniper

1. Locus 1-2 (Figure 2). Several charcoal pit features were located about half-way up Transect 1, between the Tenabo Mill and the Nevada Giant near the Garrison Mine. Locus 1-2 is one of these. The main feature is an oval concentration of charcoal and ash lying upon what appears to be an artificially levelled terrace. Covering an area of about 11 yards by 7 yards, the concentration is perhaps two feet deep in the center and becomes progressively less deep toward the edges. No artifacts were associated.

2. Locus 1-3 (Figure 3). Just above 1-2 is another concentration of charcoal and ash that is eroding down a gully. The main feature of the concentration appears to be upon a levelled terrace in the middle of the gully; the charcoal and ash scatter is only about 5 yards by 5 yards. Extending down from the terrace is a wash of charcoal perhaps 24 yards long. Again, no artifacts are visible on the surface.

3. Locus 1-4. Unlike the other charcoal pits located in Transect 1, this feature is relatively isolated and not part of a cluster. In other ways, however, it is similar. The main concentration of charcoal and ash covers an area of about five yards by ten yards and is situated upon what appears to be an artificially levelled terrace. Charcoal extends in a thin surface wash perhaps another 40 yards down the hill, in a north-south direction. No artifacts are associated and the feature appears to be quite shallow.

4. Locus 1-5 (Figures 4 and 5). Just below Locus 1-3 and above Locus 1-2 lies another charcoal pit feature. Unlike the others, however, Locus 1-5 may be the remains of a kiln. The feature is a large excavated pit surrounded by rock piles around the rim; this rock pile may be the remnants of a kiln structure. Inside the pit is a three or four feet deep pile of



Figure 2. Locus 1-2, a charcoal pit.



Figure 3. Locus 1-3, a charcoal pit.

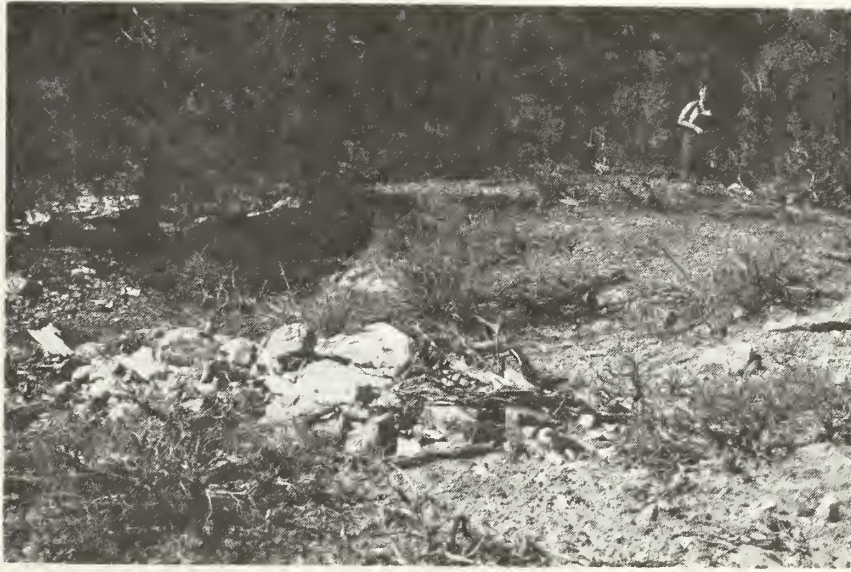


Figure 4. Locus 1-5, a possible charcoal kiln.



Figure 5. Locus 1-5, a possible charcoal kiln.

charcoal and ash. The entire pit is about 16 yards by 17 yards in size and is approximately circular. As in the other charcoal features, no artifacts are associated.

5. Locus 4-1 (Figure 6). Just east of the claim line marking Transect 4 and at its intersection with cross-road 6 is a rather extensive trash scatter associated with a recent drill hole for geophysical prospecting. The scatter covers an area of around 100 feet by 100 feet. It includes such features as a drill hole, a charcoal scatter, a graded road, and a variety of portable artifacts associated with domestic activities. Perhaps most diagnostic, however, is a wooden post at one edge of the scatter upon which the following information is attached: "Oct. 26 to Nov. 9, 1964, Contract 14230902195, Docket One 6350, Cortez Joint Venture."

6. Locus C-1 (Domestic trash scatter). The only evidence of human occupation located by Hardesty and Hill in transect C was a moderately-sized (70 feet by 35 feet) artifact scatter about 500 feet below the tailings flow from the Consolidated Cortez mill. Barrel hoops, tobacco cans, and a variety of hole-in-the-top cans were observed. A late 19th century occupation is suggested.

Ore Body

1. Locus A-3 (Adit). At the top(east) end of Transect A was located a group of two adits with associated industrial trash. One of the adits was fitted with a door and a corrugated metal roof over the entrance; the other was supported by a framework of heavy timbers. Several stone structures were associated, including what appears to be a rock dam in the gully below the roofed adit and a domestic house foundation just north of the other adit. Domestic artifacts in the vicinity of the house structure include stove pipe fragments, corrugated metal roofing, tobacco cans, sanitary seam



Figure 6. Locus 4-1, a geophysical prospect.



Figure 7. Locus 1-1, a domestic trash scatter.

food cans, and barrel hoops. Below the adits are a ladder made with wire nails and a retaining wall for what appears to be a railroad grade with some ties still in place.

2. Locus 2-4 (Domestic Structure). Near the end of Transect 2 was located an historic house foundation associated with a variety of domestic trash. The structure has standing rock walls about two feet high and a floor size of approximately 14 feet by 14 feet. Observed artifacts in and around the building include a shell button, cut and wire nails, amber glass bottle fragments, gray stoneware, hole-in-top and sanitary cans, and barrel hoops. The tentative date of this structure is late 19th century.

Upper Cortez Gravity Center

1. Locus 1-1 (Domestic Trash Scatter) (Figure 7). Just above the Tenabo Mill tailings in a gully is a rather extensive trash dump. Most of the artifacts are tin cans of the crimped seam or sanitary variety, suggesting a 20th century date. Other visible artifacts include iron-stone/improved whiteware bowls, cups, and plates; enameled metal wash basin or pot; an enameled coffee pot; an harmonica fragment; and an early 20th century soda bottle. The scatter covers an area of approximately 30 yards east-west by 50 yards north-south and follows the gully bottom. There is no evidence of sub-surface material. In general the scatter suggests several localized dumping episodes originating in the activities of domestic households, probably sometime during the operation of the Consolidated Cortez mill in the 1920's.

2. Locus 4-2 (Domestic Trash Scatter) (Figure 8). Just south of the present haul road in Transect 4 was located a rather extensive trash scatter associated with a Chinese domestic occupation. The scatter covers

an area of about 16 by 16 yards and is situated in a mixed sagebrush and pinyon-juniper ecotone. Associated artifacts include several fragments of Four Seasons earthenware, hole-in-top cans, green glass beads, a talc can, a top of a kerosene can, and a variety of other domestic items. The feature may extend much further south.

3. Locus 4-3 (Domestic Trash Scatter) (Figure 9). Between Upper Cortez and Activity Locus 4-2 was located another domestic trash scatter in Transect 4 but without any evidence of Chinese affiliation. The feature is quite large, covering an area of perhaps 45 by 24 yards oriented in a north-south direction. A heavy concentration of purple glass bottle fragments suggests an early 20th century date for the scatter. Such domestic artifacts as clocks, ironstone pottery, chamberpots (enameled metal), sanitary seam food cans, tobacco cans, and log cabin syrup cans are in the vicinity.

4. Locus 2-1 (Domestic Trash Scatter). The first site located in transect 2 was somewhat less than 400 feet from the road going up to the Garrison Mine and within the Upper Cortez Gravity Center zone. Covering an area of about 36 feet square, the site is a scatter of sanitary milk cans and some glass bottle fragments. Little was observed that could be used for dating, but a turn of the century date is suggested.

5. Locus 2-2 (Domestic Trash Scatter). Nearly 550 feet from the Garrison Mine road in Transect 2, a second domestic trash scatter was located. This site is approximately 30 feet in diameter and, as with locus 2-1, consists mostly of turn of the century milk cans and "purple" glass.

6. Locus 2-3 (Domestic Structure). The third site in Transect 2 was located almost 900 feet from the Garrison Mine road and just below the haul road. Unlike the other two in this transect, locus 2-3 is quite



Figure 8. Locus 4-2, a domestic trash scatter with Chinese artifacts.



Figure 9. Locus 4-3, a domestic trash scatter.

extensive, covering an area over 75 feet square, and a wide variety of artifacts was observed. Included are a number of flattened kerosene cans with nail holes (probably used for roofing or siding material), window glass, "purple" bottle glass, rubber shoe soles, and turn of the century milk cans. Scattered wood fragments, along with the flattened cans, suggest the remains of a structure. The probable date is early 20th century.

7. Locus 3-1 (Domestic Trash Scatter). About halfway between the first crossroad and the haul road in Transect 3, Panelli and Siegler located a small domestic trash scatter. As with the Transect 2 scatters, the site consists mostly of turn of the century milk cans and "purple" bottle glass, along with what appears to be somewhat earlier wine bottle glass and hole-in-top cans. The 20 feet by 50 feet scatter is estimated to be turn of the century in date but may be slightly earlier.

8. Locus 3-2 (Domestic Trash Scatter). Just below the haul road on Transect 3, Panelli and Siegler located a very small scatter of jian you or Chinese brownware fragments associated with a few wine bottle fragments. No date could be estimated.

9. Locus A-1 (Domestic Trash Scatter). This locus is on Transect A about 1/4 mile east of the ravine above the Upper Cortez cemetery. Observed artifacts include oyster shells, "purple" bottle glass, turn of the century milk cans, enameled wash basin, ironstone pottery, and wood fragments, among other things. The estimated date of this 30 by 60 feet scatter is early 20th century.

10. Locus B-1 (Domestic Trash Scatter). Just below the tailings flow from the Consolidated Cortez mill, Panelli and Siegler located an extensive trash scatter that extended from the tailings all the way to

Upper Cortez. The scatter consists of tin cans, glass bottles, and a variety of other domestic trash--apparently originating in several time periods from the early 20th century on.

Alluvial Flats

1. Locus E-1 (Domestic Structure). Sennett-Walker surveyed the alluvial bottomland area just below Upper Cortez, which has been designated Quadrats E and F. Quadrat E includes the sagebrush zone between the pinyon-juniper forest and the main road to Upper Cortez from the Grass Valley road, extending from Transect A to Transect D. Locus E-1 is a domestic structure located within this quadrat. It consists of two standing stone buildings associated with trash scatters made up of hole-in-top cans, beer bottle glass, and cobalt blue bottle glass. The estimated date of occupation is late 19th century.

2. Locus E-2 (Domestic Structure). Also in Quadrat E was a standing adobe structure near Transect C. The building has an interior wooden frame and a roof made partly of corrugated tin and partly of a thatch-like material. Wire nails were used in construction, suggesting a 20th century date, but no other temporally diagnostic artifacts were observed.

3. Locus F-1 (Domestic Structure). Sennett-Walker surveyed Quadrat F, which is the sagebrush zone extending from Transect 1 to Transect 4 in the lower valley. Locus F-1 is a building foundation in this quadrat, just east of Transect 1. The feature was associated with an extensive trash scatter, including cans, bottles, bed springs, chicken wire, stove parts, and pottery. The house is probably early 20th century in origin.

4. Locus F-2 (Domestic Trash Scatter). A fairly large trash scatter was located in Quadrat F between Transect 2 and Transect 3. The scatter includes cans, stove parts, "purple" bottle glass, ironstone pottery, and a

broom handle. Another early 20th century occupation is suggested for this 65 feet by 50 feet scatter.

Consolidated Cortez Mill Gravity Center

1. Locus A-2 (Industrial Trash Scatter). Panelli and Siegler located an extensive scatter of industrial trash just below the intersection of the haul road with Transect A. The scatter was made up of cyanide can lids, barrel hoops, pulleys, canvas fragments, and a variety of other industrial artifacts, along with such domestic trash as sanitary cans, light green wine bottle glass fragments, machine-made bottles, and the like. Locus A-2 probably dates to the operation of the Consolidated Cortez mill in the 1920's.

CHARCOAL MAKERS IN THE PINYON-JUNIPER ZONE: A SPECIFIC LAND USE MODEL

The expected activities in each of the land use zones in the Cortez district were generally supported by the 1982 field survey. That is, several charcoal pit sites were located in the pinyon-juniper zone, a number of domestic sites in the vicinity of the Upper Cortez Gravity Center, adits and associated industrial sites in Ore Zone, and dispersed domestic and industrial sites in the Alluvial Flats.

The four charcoal pit sites located by the 1982 survey raises questions about the behavioral system within which the sites originated. Most important as future research goals are questions about functional variation among the sites, the ethnic affiliation of the charcoal makers, the geographical location of the sites within the pinyon-juniper forest, the date of each site, and changes over time in the behavioral system. Comparative data from archaeology and documentary history are available to develop a general model of charcoal making behavior, from which a specific model for the Cortez district can be derived. Recent research

in the Truckee Basin of the California Sierra Nevada (Elston et al 1981, 1982) and in the Continental Divide of Colorado (Buckles 1978) provide relevant data. According to these studies, charcoal making involves a complex set of human activities that may vary according to style, time and function. Such variation occurs mostly in the form of the technology. A general model of the process stipulates that charcoal is created by stacking cordwood around an interior "chimney" and covering the stack. The stack is then fired and the rate of burning controlled by means of draft holes in the outer cover. Archaeological visibility of this activity comes from the non-combustible residue (charcoal and ash), the outer cover (clay and other "skin" fragments or a brick or rock structure), and landscape engineering (e.g., artificial levelling or the preparation of a pit).

Stylistic variation in this general model may originate in ethnicity. Buckles (1978:887-892) finds historical evidence for ethnic differences in the shape of European charcoal pits. British pits were usually round, and similar shapes have been reported in France, Germany, Bohemia, Bavaria, and Sweden. Some Swedish pits, however, are square or rectangular with no supporting framework. Finally, charcoal pits in Austria are long and rectangular with a wooden framework to support the stack, similar to much earlier Roman pits. Whether shape can be used as an ethnic marker, however, depends upon a number of things. In the first place, shape may have functional or temporal correlates, although we are presently unaware of data supporting this viewpoint. At the same time, it does not seem illogical to assume that the structure of stacked cordwood would have some functional relationship to pit shape. Secondly, stylistic variation in pit shape may originate in the random fluctuations of isolated social groups-- an example of "cultural drift" (Binford 1963; Cavalli-Sforza and Feldman

1981; Hardesty 1983). And, finally, the distinctive shape of one ethnic group may be "adopted" by another. A possible example comes from the Truckee Basin (Elston et al 1981, 1982). Here, round and oval pits are associated with Chinese households dating to the 1870s or 1880s. The British traditional shapes may be the result of the Sisson Lumber Company, who employed the Chinese workers, training these former railroad laborers to make charcoal; since they would probably have been unfamiliar with the technology of charcoal making in China, they would have adopted available Western techniques (see Spier 1958b). (Alternatively, of course, the Chinese domestic sites and the charcoal pits may not be contemporaneous. Unfortunately, nothing was located in the pit deposits that could be used for precise dating.)

Functional variation in charcoal making technology is manifested in the contrast between the charcoal pit and the kiln; pits are temporary structures consumed with each episode of charcoal making, while kilns are permanent structures of brick or rock. The archaeological implications of the two types include more than technological differences. Unlike charcoal pits, kilns are expected to be associated with larger groups and more permanent and complex domestic activities. Thus, Buckles (1978: 882-894) proposes that pits usually do not include evidence of domestic activities; if so, it suggests temporary camps of small groups of adult males. Kilns, in contrast, are proposed to more frequently include archaeological evidence of permanent domestic households occupied by nuclear families or larger social groups. Furthermore, there are differences in expected site locations. Kilns require the movement of logs to the place where charcoal is being made; consequently, they are generally situated in extensively wooded areas and next to a major transportation route, such

as a river or primary road. Pits are a much more mobile technology. They are built specifically to process small patches of woods and, as a result, are much more geographically dispersed than kilns. And, since log movement is unnecessary, pits are usually not expected to be found next to major transportation routes. Otherwise, both pits and kilns are likely to be located on naturally flat or artificially levelled terrain in wooded areas.

Buckles (1978:905-908) interprets the differences between charcoal pits and kilns as economic in origin. In this functional explanation, kilns are viewed as most cost-effective in wooded areas with accessibility to major transportation routes, and pits are most cost-effective elsewhere. An alternative functional explanation is proposed by Young and Budy (1979). Here, kilns are considered as specialized charcoal making technology for creating the very high temperatures necessary to reduce some woods, such as juniper and mountain mahogany, to charcoal. Pits are a more generalized technology used to process woods that demand lower temperatures, especially pine. The widespread occurrence of charcoal pits in the pine-covered Truckee Basin supports such an interpretation (Elston et al, 1981, 1982); however, there is some archaeological evidence for kilns in the Basin (Richard Markley, personal communication). Certainly, more documentary history and archaeological work must be done to determine which of these two explanations is most feasible in a given region, such as the Cortez mining district.

Some people have argued that variability in charcoal making sites is the result of differences in time. For example, Murbarger (1965) has argued that pits are earlier than kilns, that these technological variants are stages in the development of the industry. Perhaps dendrochronology can be used to date the remains of a large sample of pits and kilns to

determine whether or not time is a better explanation than function to account for the observable differences in charcoal making technology. Buckles (1978: 893-894) also proposes an "age-area" model to predict time variation among charcoal pits in the vicinity of Leadville, Colorado. His assumption is that the first pits were built closest to the mill or other place of consumption. Then, as the forest is gradually cut, later pits are built further and further away. Such a time series may be appropriate for the Cortez region.

From the preceding general model of charcoal making behavior emerges a specific model for the Cortez mining district. The model includes stylistic, functional, and temporal processes of variability in archaeological sites. Documentary history suggests that both Italian and Mexican workers were involved in making charcoal at Cortez, perhaps with the former being earliest. Making this part of the model workable for the archaeological record will be difficult, however. Documentary or archaeological data showing distinctive shape or other formal differences between Italian and Mexican pits are needed; archaeological evidence may be especially difficult to find if only pits were used in the Cortez district, since little or no domestic material is likely to be associated. Consequently, ethnic affiliation of the pits will be difficult to ascertain.

Temporal variation in charcoal making sites in the district is expected to conform to an age-area model centered upon the Tenabo Mill. That is, the earliest sites should be closest to the mill and should date about 1886, when the mill was built; sites further away should be progressively later in time until the district's conversion to electric power in the early 1920s. The same model may also be applicable to the Cortez Mill region in Mill Canyon but with earlier dates. Finally, the charcoal

making sites in the Cortez district are expected to be of the pit type, mostly because of the rugged terrain and absence of major transportation routes through the pinyon-juniper forest. For this reason, archaeological evidence of domestic activities associated with the charcoal making sites are expected to be minimal, if at all present, and limited to short-term camps for a few adult males.

1982 SHOSHONE WELLS EXCAVATIONS

Excavations in the 1982 field season were designed to continue testing of the various structure types including dugouts (S-35, 42 and 43), adobes (S-9, 13), and probable former wooden structures with stone foundations (S14). Another task completed during this field season was a more accurate plot of the structures in relation to the enclosure, roads and other features.

In the following discussion of the excavated structures, we will present structure descriptions, a brief synopsis of some of the artifacts recovered, and tentative cultural affiliation and date for each structure. The chapter is arranged by architectural type.

DUGOUTS

Dugout S-35.

This structure is a nearly square depression excavated into a slight rise. The entrance exit is east to west and is 5 meters (m) in length. Width is approximately 4.5m and parallels the slope. A 1m x 1m test pit was excavated into the southeast corner of the structure to a depth of about 70 centimeters (cm) below the surface. This excavation revealed one edge of a very shallow dish-shaped floor about 60 cm below the surface with a probable rock foundation. This structure probably had a wooden superstructure.

Diagnostic artifacts include three fragments of Chinese ceramics, hole-in-top cans with soldered side seams, and 35 cut nails and only 1 wire nail from the upper level. Other, less sensitive time markers include paneled bottle fragments, and olive and amber colored bottle glass. Though the data are extremely few, we tentatively place the age of this structure at

between 1880-1905. The ethnic affiliation is Chinese at some time during its use.

Dugout S-42

A 1 x 1 m test pit was sunk near the southwest corner of a 6 m long x 3 m wide dugout, Structure 42. Approximately 40 cm below the surface, a white, calcium carbonate mass was encountered along the western entryway edge of the structure. To ascertain the nature of this feature, the pit was then extended 50 cm to the west. This mass appears to be a naturally occurring formation, which was partially excavated in the construction of the structure. It was also necessary to extend the trench southward about 50 cm to expose the dugout wall. During the excavation of the fill, a series of confusing, undulating strata was uncovered by the excavators. Upon closer examination it was determined that this was in actuality a collapsed adobe wall at the front of the structure.

Many of the adobe bricks are carbonized on one or more surfaces. Furthermore, the probable mortar for the bricks has a reddish hue indicative of high temperature alteration coincident with burning. It is our belief that a portion of this wall was a collapsed chimney and fireplace situated just inside the structure door. That this probably does not represent a burned structure is deduced from the lack of large amounts of charcoal and the unburned nature of the leather, cloth, and composite artifacts. Rocks and a few odd sized red clay bricks were recovered in the sidewalls of the structure and may have served as a foundation.

Beneath the fallen adobe bricks, a habitation surface was delineated by a thin charcoal flecked, ashy band. Two post holes, about 25 cm each in diameter, were situated near the entryway. Only one of these, however, appears to have contained a post. One hole contained decayed wood, while

the other one was much shallower and was filled with the occupation surface fill. The holes were originally excavated with a rod-like digging tool, whose impressions are preserved on the hole walls. Culturally and temporally diagnostic artifacts recovered from the floor surface include Four Seasons ceramics and cut nails (cut nails 79% and wire nails 21%).

At least two barrel hoops were recovered toward the center of the structure just above the floor surface. This may represent a piece of furniture, a wall construction element, or a roof vent.

This structure was probably constructed by the Chinese around the turn of the century. Distinguishing features include an excavated trench into a slight rise with backfill placed around the edges. The sidewalls were reinforced by use of dry laid rock and clay brick. Partial support for the roof was probably achieved by use of posts near the dugout's entrance. These roof supports may have been placed on either side of the entryway, but only one side of the structure was tested.

ADOBES

Adobe S-9

This adobe building is about 4 m wide (E-W) and 5 m long (N-S). The structure walls are constructed of two independent layers of adobe bricks, which measure about 12" x 4" x 6". Several courses of cobble-size stones are incorporated into the lower portions of the wall and make up the foundation. The door of this structure faced to the east.

A single, 90 cm deep 1 x 1 m test pit was excavated into the north-east corner of the structure through the edge of a pothole. The artifact yield of this structure was meager, and no well-defined living surfaces were recognized. A layer of ashy dark-stained fill was interpreted as a floor, but fragments of adobe with plaster adhering to one surface apparently contained below this level. Diagnostic artifacts included one fragment

of Swatow pottery, 8 cut and 6 wire nails, and flattened hole-in-top can fragments, possibly used for roofing the structure.

The artifact/information yield from the excavation was limited. It is our belief, however, that although this structure appears to have been utilized into the 20th century, it probably dates from the 1870s or before and was subsequently used by later occupants.

Adobe S-13

Excavation of this structure began in 1981 and yielded an interesting occupational record. The 1982 excavation consisted of extending last year's test pit one square meter to the west. Again, a very distinctive occupational surface associated with the Chinese was revealed. Though it was hoped that this season's testing would reveal a lower, earlier, living surface, we again were unable to locate it.

Among the artifacts from the Chinese occupation layer were the following: Chinese ceramics (Four Seasons, utility brown ware, and celadon); a broken, red, burnished opium pipe bowl; Chinese cash ("Kang Hsi T'ung Pao", ca. 1662-1772); a ceramic jar lid; a rubber galosh ("Boston Rubber Shoe Co./Boston, USA"); and a brown transfer pattern ceramic plate fragment.

The dating of the Chinese occupation of this structure is estimated at between about 1890 and 1910. The older occupation left very little diagnostic material, a similar situation to S-9. A basal fragment of an embossed panel blue-green bottle with the final letter "S" was recovered from what we believe to be the earlier (pre-Chinese) occupants of the structure. As with S-9, we tentatively date the construction of this structure to the 1870's or earlier.

Adobe S-43

This structure is believed to have been an adobe because of the existence of "melted" adobe and adobe fragments with plaster adhering to one surface. The building has a stone foundation and a sloping, sunken living room characterized by darker fill. Beneath this floor is a sterile sandy loam fill.

A one meter by two meter trench was excavated through the north wall of the structure. The rock wall at this point extended down at least 65 cm and may have been built within a trench.

Artifact yield from this structure was low, but included the following: 34 nails (79% cut, 18% wire and 3% L-head), Chinese ceramics, and bottle glass. The tentative dating of this structure between the 1890s and 1910 is based upon the nail manufacturing types and an Obear-Nester bottle maker's mark (ca. 1894-1915). This structure was occupied by Chinese during this occupational interval but may date from an earlier period.

WOODEN FRAME STRUCTURES

Wooden Frame Structure S-14

This structure was particularly rich in its yield of artifacts, probably because it was used for trash disposal during the Chinese occupation of the site around the turn of the century. The foundation of the building was constructed by excavating a 0.0 m to 0.5 m deep pit to achieve a level surface in the sloping colluvial/alluvial slope and then lining the excavated walls with cobble-size stone. It is presumed that a wooden structure was then built upon this stone foundation.

This structure was particularly badly disturbed by vandals because of its one-time use as a refuse area. Unlike other wooden frame structures

which were readily moved from one location to another, the recovery of over 600 nails (61% cut, 33% wire and 6% L-head) indicates the demise of the structure at this spot. There was little evidence, however, of burning, other than charcoal concentrations in the midst of unburned artifacts. A one meter wide test trench three meters long was excavated along the south (hillside) wall of the structure.

The refuse recovered from the upper levels of this structure reflects household debris including the following: numerous bottle fragments from liquor bottles, pickled food bottles, pharmacy bottles and canning jars; numerous fragments of Chinese storage and shipping jars; numerous fragments of Euro-American ironstone; Chinese earthenware; buttons; stove lid fragment; shoe fragments; cloth; comb fragment; porcelain doll fragment; and sawn, large mammal bones.

The artifacts from this site indicate a ca. 1880s-1910s occupation by Chinese and, from the recovery of a single doll fragment, possibly by a nuclear family.

PITS

Pit P-2

A stone lined pit 104 cm in diameter is located in the bank of the ephemeral drainage on the eastern edge of Shoshone Wells. Although the pit was surrounded by debris that was almost surely later fill, recently exhumed, it was felt that some in situ deposits remained. The pit was excavated to a depth of 170 centimeters and the deposits continued. The upper levels (0-163 cm) of this feature contained a deposit of compacted charcoal, ash, and very friable, heat altered(?), stone.

Included in the disturbed fill adjacent to the compacted charcoal layer was a concentration of over 100 bones from at least seven whole

chickens. The entire skeleton from skull to metapodials was represented, and the birds were neither butchered nor burned. The deposits also contained Chinese ceramics, nails (cut 36%, wire 28%, L-headed 36%), and hole-in-top cans. The lowest level contained bones, nails, and sheetmetal.

This feature was initially believed to have been a well because of its location adjacent to the drainage and its structure. It must be noted, however, that the catchment area for the drainage is relatively small, the stream has not been observed carrying water during the summer, and the area appears to lie outside of the Shoshone Wells aquifer drainage. The Shoshone Wells aquifer, and namesake, lies above, west of, the site and to the north about 200 m. The well next to the Wenban house site is at least 10 m deep within the subsurface drainage of the aquifer.

Alternatively, this feature may have functioned as an oven filled with burning wood and stones, along with the material to be cooked. After functioning as an oven the excavated pit was then backfilled with charcoal and trash. The disposal of the 7+ whole chickens, remains a mystery. The fill is associated with the Chinese occupation of the site and is dated sometime between the 1890s and 1910s. The stone lined pits, probably functioning as ovens, are assumed to have been associated with the Chinese.

ARTIFACTS

Artifacts recovered from the 1982 excavations at Shoshone Wells are tabulated in Table 2. The artifact assemblage most commonly associated with Overseas Chinese Culture in the West is the ceramic container and vessel assemblage. This group consists of food storage and shipping jars, as well as serving, drinking, and eating vessels. To our knowledge, all of these ceramics were manufactured in China and imported to the United States. The following analysis of the Cortez Chinese ceramics is based upon fragmentary specimens. Fortunately, however, with few exceptions,

the majority of the Cortez ceramics are common to many other western historic sites occupied by the Overseas Chinese.

Celadon (Figure 10a, b)

Celadon is one of the common ceramic types, and it is present, in small numbers, throughout the Chinese portions of the site. These porcelain vessel fragments include parts from cups and bowls. The celadon recovered from the site included two marked vessel bases from S-14. Both pieces have similar fabric but vary slightly in color. One specimen is a small cup 30 millimeters (mm) high, 48 mm in diameter, and with a rimmed base 24 mm in diameter. The exterior color is very pale green, while the interior and base are a very light greenish gray. Within the basal ring is a dark blue Chinese character.

The other marked celadon fragment is an incomplete basal section from a bowl. This vessel has a basal thickness of 75 mm and wall thickness near the base of 50 mm. The basal ring is about 68 mm in diameter. There is a portion of a handpainted dark blue seal-like design in the center of the base, and the internal basal color is very light greenish gray.

Four Seasons (Figure 11a, b)

This ceramic type is also a common type used for eating and serving vessels recovered from the site. Four Seasons is a white porcelain with a characteristic hand painted design. It has a central, interior red fruit or flower surrounded by green leaves and four equispaced polychrome flowers and leaves surrounding the central decoration. The elements for the surrounding design represent plants characteristic of the four seasons of the year, and they are of Taoist significance. The plants are the plum, lotus, peony, and the chrysanthemum (Praetzelis and Praetzelis 1979:147).

TABLE 2: CLASSIFICATION OF ARTIFACTS FROM 1982 PROJECT

GROUP	CLASS	TYPE	STRUCTURE							
			2	9	13	14	35	42	43	
Culinary	Tableware	Celadon			2	6				
		Jian You	2		88	77	2	2	3	
		Four Seasons	3		2	3	1	5		
		Swatow		1						
		Ironstone			5	157	1			
		Unknown	8			27				
	Containers	Utensils						2		
			Cans, hole/top	41		2	5		4	
		Cans, other soldered				17				
	Cooking	Pot/pan					2			
Furnishings	Lamps	Lamp Chimney								
	Stoves	Cast iron			1		1			
Construction	Nails	Cut	9	8	15	394	35	106	27	
		Wire	7	6	6	215	1	21	6	
		L-head	9		3	41	1	16	1	
		Tacks				2			2	
		Glass		8	11	42		16	1	
	Window	Fragments			1	2	4	6		
	Brick	Wood				7				
	Screws	Fragments						4		
	Plaster	Cloth						4		
	Wall Covering	Misc.				3				
	Personal	Clothing	Buttons				5		8	
Cloth						30				
Shoe/leather						40	19			
Shoe/rubber					1	4				
Opium		Pipe			9	1				
		Container				33				
Smoking		Clay pipe						1		
Firearms		Cartridges					6			
		Bullets					2			
Coins		Chinese			1					
Animal	Maintenance	Horseshoe								
		Nails			1	2				
Unknown	Bottles	Glass frags	4	7	66	484	47	73	33	
	Bone	Fragments	146	1	22	130		30	3	
	Barrels	Hoops				5				

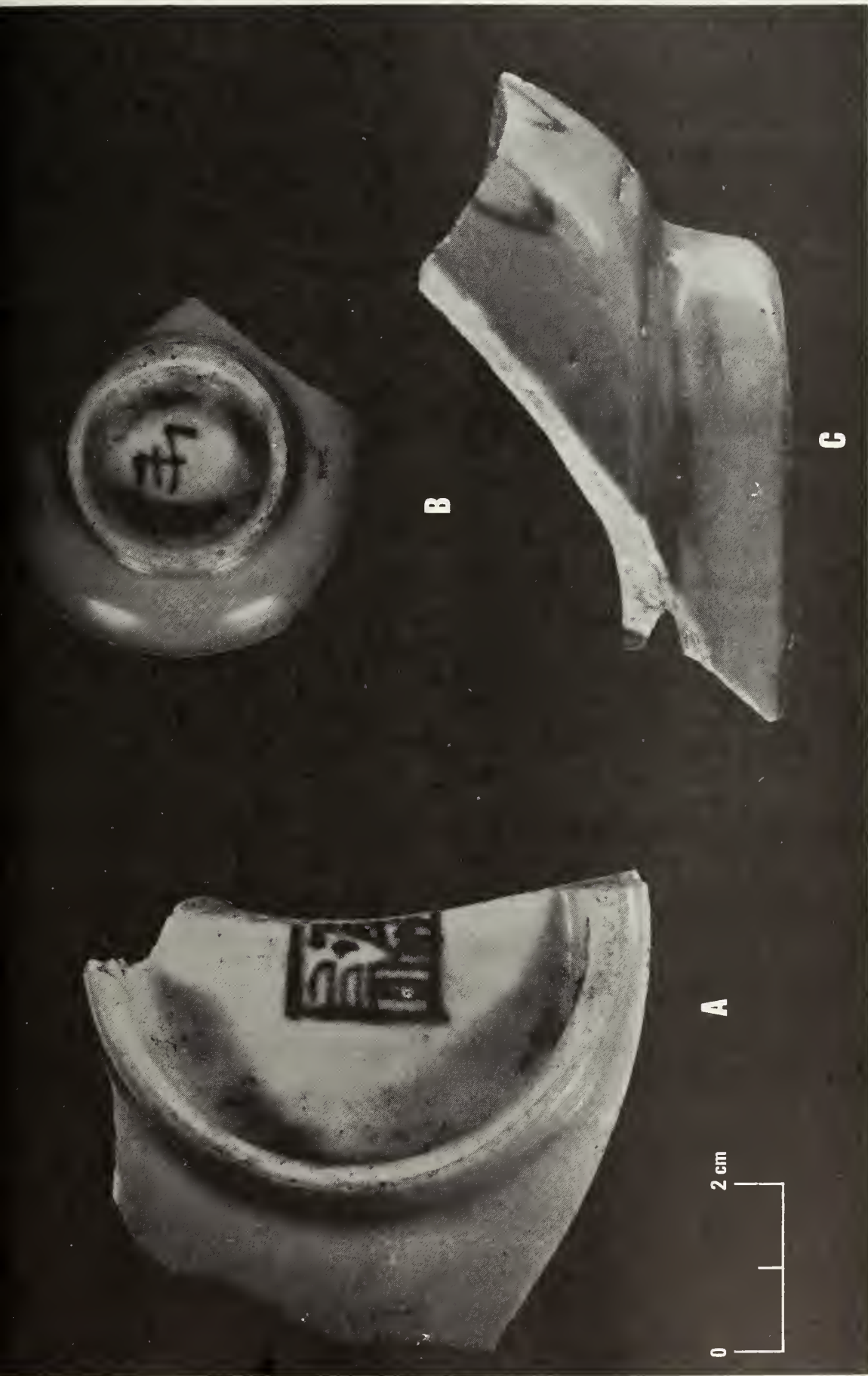


Figure 10. Chinese Ceramics. Celadon bases and basal markings (A, B); Swatow bowl fragment (C).

Swatow (Figure 10c)

Swatow stoneware has a light bluish gray glaze with a medium to dark bluish gray design. The vessel type represented by this ceramic is a moderately thick walled bowl with a ring base. Bowl interiors are decorated with two circles on the interior vessel wall and a comma-shaped mark on the bottom. In addition to one rim and three basal circles, the exterior has a characteristic design element in fine and thick blue lines interpreted as representing, and also called, "three circles and a dragon-fly" or "blue flowers" (Praetzellis and Praetzellis 1979:149). The term "Swatow" (Shantou) refers to place of manufacture in China for this type (Olsen 1978:15).

Brownware (Figure 12b, f)

This is the most common Chinese ceramic type and is in the form of small, utilitarian stoneware shipping containers. It usually has a moderately course yellowish brown fabric and grades in exterior glaze color from gray brown with a semi-metallic sheen to a semi-vitreous dusky brown. The exterior surface texture ranges from an unevenly smooth surface with numerous shallow depressions in the fabric to a relatively smooth surface. On a smaller scale, however, the surface is occasionally punctuated by glaze filled pits and unglazed (broken) projections representing burst bubbles of glaze and inclusions in the glaze or fabric. The interior of these vessels may or may not be glazed and, when glazed, have thin coats of the exterior glaze. Exterior fragments of the base are usually unglazed with a moderately sharp but uneven boundary between glazed and unglazed surfaces.

Vessel wall thickness varies with location on the container and the overall container size. In our sample, the typical range of thickness is

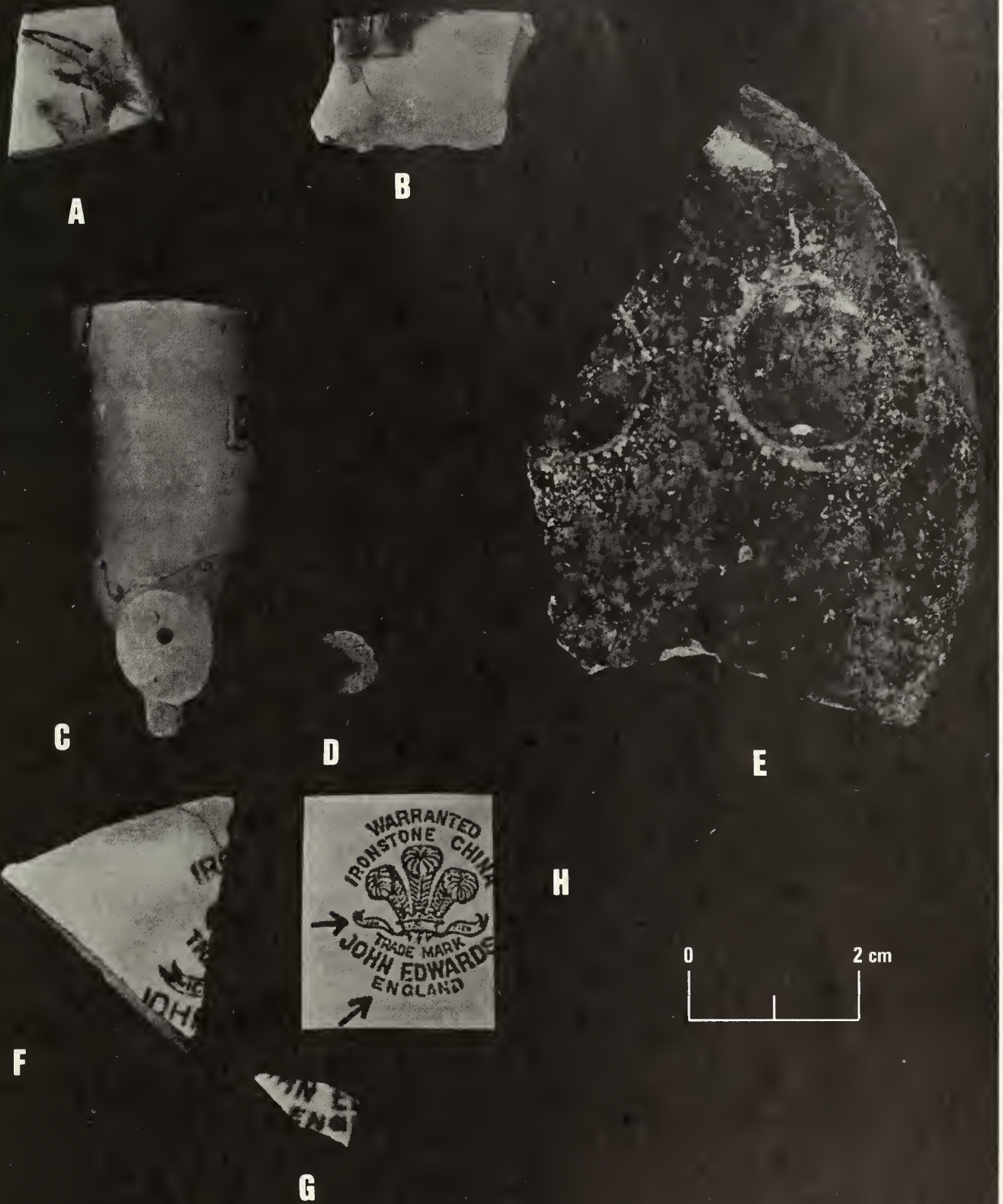


Figure 11. Chinese and Euro-American Ceramics. Four Seasons fragments (A-B); clay pipe fragments (C, D); possible zooiform fragment (E); ironstone fragments (F, G); and probable complete maker's mark (H).

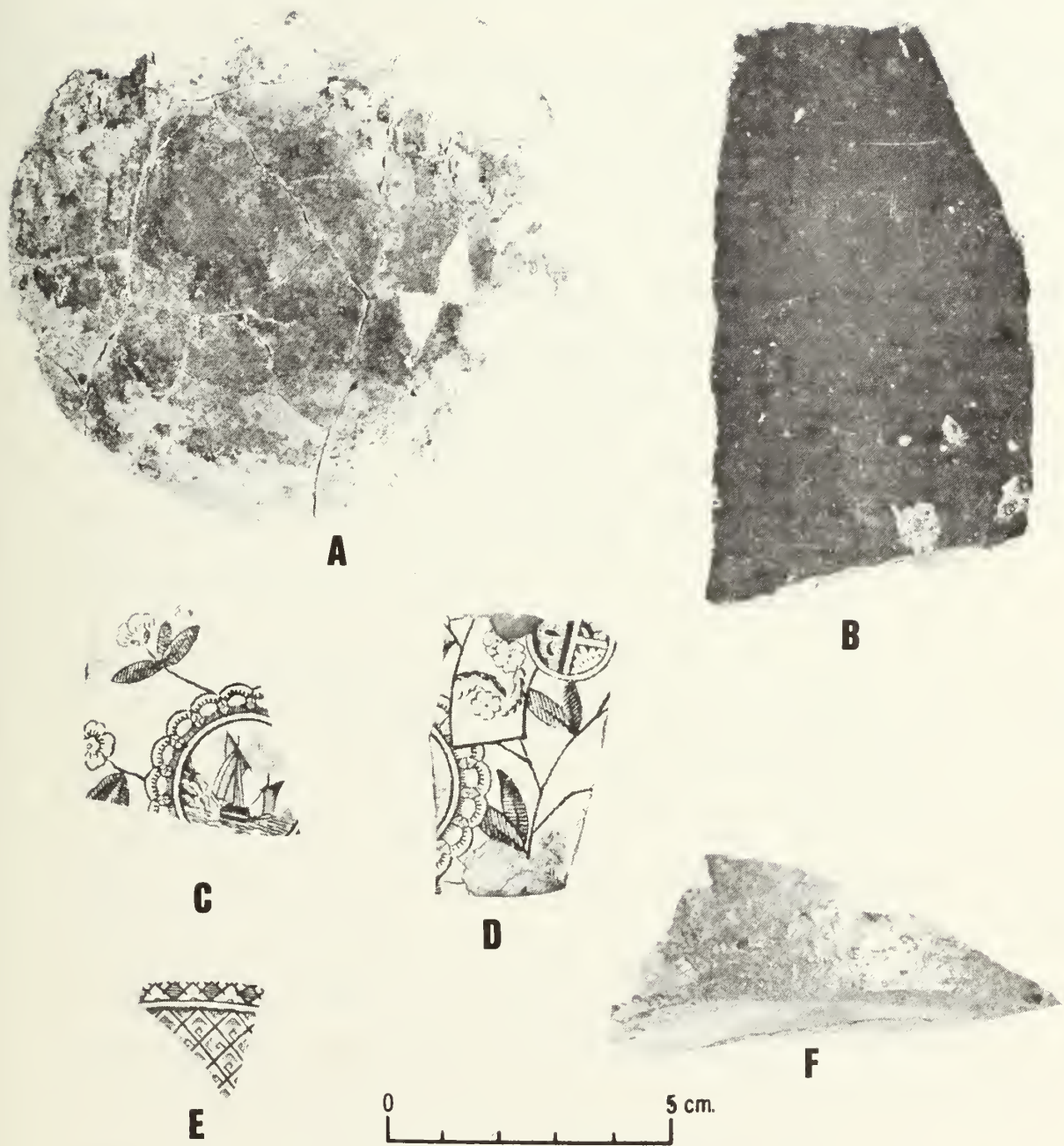


Figure 12. Chinese and Euro-American Ceramics. Unglazed jar lid (A); brown glazed utility ware (B); unknown transfer pattern ware (C-E); brown glazed utility ware (F).

between about 3.5 to 7.0 mm with variation tending toward thickness greater than 7.0 mm.

Reconstructed dimensions indicate vessels ranging in diameter between at least 10 and 20 cm. The majority of the identifiable fragments appear to be from wide mouth containers and considerably fewer pots with pouring spouts.

The Cortez brownware pot fragments are from various forms of Chinese foodstuff containers. Contents probably varied from pickled vegetables to soy sauce (Olsen 1978: 32-34; Praetzellis and Praetzellis 1979: 152-155). Although no complete or reconstructible vessels were recovered, the complete forms are known from other archaeological sites and from modern day Chinese grocery stores (Olsen 1978:33).

Green Glazed Stoneware

Two ceramic fragments with a green glaze were associated with Chinese artifacts in S-14. One fragment is from a shallow bowl approximately 120 mm in diameter, 30 mm high, and about 6.0 mm thick. This container has a rim about 10 mm wide, which is the only glazed area on the piece. The interior of the bowl, including the rim, was coated with a dark gray wash and then a green glazing material was applied over this surface and fired. There is minimal migration of the gray through the glaze on both edges of the rim. The boundary between the glazed rim and the unglazed area of the rim is very sharp and is marked by a narrow yellowish orange strip.

The other fragment of green glazed ceramic is a small irregularly shaped piece with at least two glazed perforations. Although the predominant color is green, it grades from a pale green to aqua blue, possibly as a result of post-manufacture burning. The glaze is crazed, opalescent, and badly pitted in the blue colored area. Additionally, the glaze in the blue

colored area is incorporated into the fabric rather than merely sitting upon it, as does the green colored area. No vessel form is postulated for this fragment.

Green-Brown Mottled Stoneware

Two fragments of a possible abstract zoomorphic effigy were recovered from S-14. The completed specimen may have been ovoid, about 67 mm wide with a pointed (anterior) end and two circular depressions (eyes) about 17 mm in diameter some 26 mm from the anterior end. There is a single unglazed foot extending 20 mm below the unglazed bottom surface from a lateral edge. If this foot rested upon a planar surface, the upper (dorsal) surface would slope dorsally at a slight angle. There appears to be some sculpturing (a mouth) extending laterally and anteriorly along the anterior edge from the depressions. The other fragment from this piece also exhibits sculpturing; however, this fragment does not join to the other one.

The glaze on this stoneware is variegated and mottled. It is very pale green and appears infrequently. Bleeding from dusky yellowish brown fibrous inclusions gives the predominant color. The resultant color and pattern of these inclusions are a dusky yellowish brown to dusky yellow color, a variegated to mottled pattern, and some iridescence covering most of the dorsal surface. Further mottling is created by white phenocrystic inclusions forming rod-like and radiating crystals. Finally, the glaze is crazed with the darker colors highlighting and following the small fractures.

The form is very incomplete and abstract, but one of the researchers postulates that the figure represents a toad.

Pinkish-Gray Stoneware

This type is represented by a single fragment from a flat bottomed bowl or dish from S-14. The unglazed exterior base is rimmed and from the basal curvature its diameter was probably about 90 mm. Basal wall thickness is 5.5 mm and sloping sidewall thickness is 2.5 mm near the base. Both exterior and interior walls are glazed with a crazed, heavy pinkish gray material; the flat interior basal surface is a mat dark gray. On the interior wall is a small portion of a medium bluish gray design. Unlike the green glazed stoneware, the dark gray pigment was not applied beneath the lighter colored glaze.

Container Lid (Figure 12a)

A small saucer-shaped, unglazed ceramic piece is probably a shipping jar lid. Dimensions of the reconstructed artifact are: overall diameter 97 mm, depth 12 mm, and central diameter excluding sloping walls 59 mm. The color of the specimen ranges from a pale yellowish orange to a grayish orange. Remnants of unfired clay adhere to the fired clay surface of the outer rim of the convex side. From impressions in the applied clay, it is postulated that this lid was placed over the open mouth of a jar, presumably a wide mouth brownware form, so that the concave surface faced upward and the convex surface entered the mouth of the jar. Similar specimens are illustrated by Praetzellis and Praetzellis (1979: Figure 1c, 1f).

This lid has apparently been reused as a dish to contain a small fire. It was recovered from a Chinese occupational surface in S-13. Other artifacts associated with the lid included numerous fragments of a brownware jar, a broken opium pipe bowl, and a cash piece.

Opium Pipe Bowl

A fragmented opium pipe bowl was recovered from the floor of S-13. This earthenware ceramic has a highly burnished moderate reddish brown surface and moderately orange pink fabric. The bowl has a flared upper rim with the base of the flare marked by an incised band. Wall thickness varies between 3 and 4 mm. The basal portion was rounded and marked with at least one Chinese character, and the top of the bowl was probably slightly convex and sharply demarcated from the flare by a right angle. Finally, the interior of the bowl is charred from use.

John Edwards Ironstone (Figure 11f-h)

Two fragments of a white glazed ironstone base were recovered from S-14. Although fragmentary, the name "John Edwards/England" and his maker's mark were reconstructed. John Edwards and Company was in production between 1847 and 1900 (Godden 1964: 231). The fragmentary maker's mark is similar to that used by the company between about 1880 and 1900 (Godden 1964: Figure 1451).

Ironstone with Dark Red Transfer Print (Figure 12c-e)

A number of fragments from this ceramic type throughout the site reflect its relative popularity. Various vessel forms are represented, including plates, possible covered serving trays, cups, and dishes. The design is mostly floral with bordered areas enclosing floral, abstract, and pictorial designs. One fragment bears a portion of a sailing ship. The border/rim of one piece is comprised of a decorated, diamond motif. This ceramic is of a low quality due to its vesicular fabric and related tendency to fracture between the surface planes.

White Clay Tobacco Pipes (Figure 11c, d)

A fragmentary pipe bowl and stem were recovered from S-42 and S-14, respectively. The pipe bowl fragment is the stem side of the bowl and bears

the raised letters "T" and "D". The bowl diameter, as reconstructed, is 97 mm; the bowl is 36.5 mm deep; the pipe stem hole is 15 mm in diameter; and the ventral spur is 7 mm long. A prominent flange is visible around the hole opening of the pipe stem fragment, which is from the tip of the stem. The inside diameter of the pipe stem hole on this specimen is 18 mm. Mold seams on both specimens have been partially scraped.

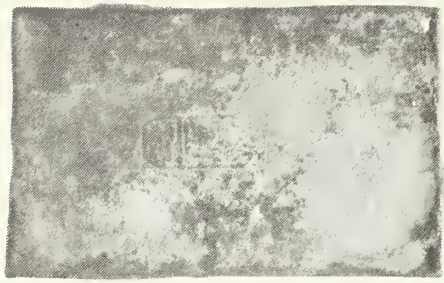
Chinese Opium Containers (Figure 13a, c)

Perhaps the most common Chinese artifact type consists of opium container fragments. These small brass rectangular boxes are made from at least five separate pieces soldered to form the box and its lid. The sides of the lid were made from a brass sheet about 12.9 mm wide; the lid is embossed with a Chinese seal. Three pieces of brass make up the container portion of the box; a thin sheet base soldered to a rectangular tube with soldered seams at its corner; a relatively thick 0.5 mm band-- 12.7 mm wide, which was soldered to the open end of the container to provide circumferential support for the box as well as a flange for the lid; and a 0.2 mm thick brass sheet for the remainder. The reconstructed dimensions of the box are 93.7 mm by 65.2 mm by 41.8 mm.

Similar boxes have been recovered from other western U.S. Chinese sites, such as the Lovelock, Nevada, community. Here, some 264 opium containers were recovered (Calloway 1979: 320).

Euro-American Ammunition (Figure 13d-h)

Several cartridge cases and bullet manufacturing by-products were recovered from S-14. This includes pistol cartridges made by the Winchester Repeating Arms Company (W.R.A. Co.), along with bases from low base 12 gauge shotgun shells manufactured by the Union Metallic Cartridge Company ("New Club") and by Winchester ("Blue Rival").



A



B



C



D



E



F



G



H



Figure 13. Metal and Stone Artifacts. Brass opium container (A, C); carved stone ink slate (B); imperfect cast bullet (D), sprue (E), and lead bar (F); cartridge cases (G, H).

An unusual find in S-14 are remnants of bullet production from use of a two piece bullet mold. These include not only lead foil and melted lead fragments but also an imperfect .44 or .45 caliber bullet showing mold half-lines and a button still attached to its sprue. The imperfect bullet appears to have been rejected because of prominent mold lines and uneven diameter as a result of not completely closing the mold and also from lead pour lines reflecting pouring of the molten lead unevenly and too slowly.

Chinese Ink Stone (Figure 13b)

A fragment of the decorated end of a greenish black Chinese ink stone was recovered from S-14. Fortunately, the stylistically diagnostic carved end of the specimen is nearly complete. The stone is a light olive gray phylitic metamorphic rock that was carved and ground to form a depressed, ovoid inking surface and reservoir, surrounded by a raised edge about 8.8 mm high at the decorated end. The decoration depicts a floral design with leaves, stems, and buds or fruits. The quality of workmanship is moderate, with carving striae visible with 5X magnification.

A complete specimen with an apparently identical design was recovered from the Lovelock Chinese site (Brown and Rusco 1979: Figure 3). This inkstone was recovered in a fitted rosewood case and measured 98 mm by 128 mm.

VARIABILITY AND CHANGE IN THE CORTEZ CHINESE COMMUNITY

The last part of the Cortez Archaeological Project is directed at Lower Cortez or Shoshone Wells Chinese settlement. Within an anthropological framework, the primary goals of the project are therefore related to the study of variability and change in the behavior of this immigrant ethnic group. More specific problem domains can then be identified within this general research area. How to approach the study of change is not agreed upon in anthropology, unfortunately, and several competing paradigms exist (see, for example, Harris 1979). Of these, evolutionary theory is perhaps the most amenable to archaeological data, both because of its "time-like" concepts and because of its "materialist" assumptions (Dunnell 1980, 1982). Cultural materialism is an especially appropriate version of evolutionary thinking in anthropology (e.g., Price 1982). Here, the emphasis is upon how natural selection changes infrastructure (the means and social relations of production). The paradigm of cultural materialism will be used in this study as a "first approximation" to the explanation of Overseas Chinese behavior at Cortez, with the understanding that scientific explanation ultimately involves the comparison of competing paradigms (Price 1982).

MODELS OF ADAPTIVE CHANGE

The pivotal concept in modern evolutionary analysis and interpretation is adaptation. And in Darwinian thought the process of adaptation is brought about by natural selection--differences in the rate at which morphological and behavioral variants are reproduced. The process of adaptation to varying environments creates both variability and change in behavior (see, for example, Kirch 1980 for a discussion of the use of adaptation in archaeology). Several models of how adaptation might be used

in the study of the Cortez Overseas Chinese are suggested in the following paragraphs.

The Sojourner Model

One scenario of adaptative change among Overseas Chinese in the United States is the "sojourner" model (Sui 1952). Both households and local settlements are implicated. Here, the immigrants are portrayed as coming to the United States only temporarily, with the expectation of returning to their homeland as soon as they have "made a fortune." For this reason, they strive to retain traditional lifeways whenever possible. No effort is made to learn the foreign language, strong ethnocentric statements about the superiority of the homeland are expressed, and social interaction with foreigners is minimized by residing in dense "chinatowns" (Lee 1960; Sui 1952; Sung 1967). Sojourner settlements are expected to be cultural "islands" that are both geographically and culturally distinctive, whether they are situated in cities or in the countryside. Strong barriers to the transmission of new cultural ideas are erected around the island. For this reason, Overseas Chinese settlements such as Shoshone Wells are likely to have an evolutionary trajectory that is quite different from their social neighbors, not only because of adaptation but also because of random and "accidental" changes that will be discussed later in this chapter. Despite the appearance of strong group cohesion, however, the sojourner community is likely to be segmented into smaller social units by common surname, speech group, and place of origin (Crissman 1967; Freedman 1966; Levy 1967; Weiss 1974). Such sub-groups act as corporate bodies in response to some environmental stresses and may join together to act as single entity to resolve more pervasive and extreme crises, much in the manner of the segmentary lineages described by Sahlins (1961) for North Africa. The

"Principle of Segmentation" (Crissman 1967), however, has been largely observed in urban chinatowns and even then not in all instances. Whether or not it operated in rural settlements or can be observed in the archaeological record remains to be tested. Elsewhere, Hardesty has suggested that such segmentation of the sojourner community might be observed in census enumerations that show surnames clustering in the same household or neighboring households and in the occurrence of high artifact similarities among neighboring households (Elston et al 1982; 254-255). Part of the Phase 3 project at Cortez will be directed at determining whether or not such segmentation exists in the Cortez Overseas Chinese community.

The household is another archaeologically visible unit that is included in the sojourner model. Both restrictive immigration laws and the sojourner's view that residence in the United States was only temporary greatly cut down the number of females entering the New World. For this reason, the sojourner household was typically made up of a "mutilated" or "separated" family (Lee 1960: 203; Sung 1967: 155). Such families usually included a father living with several other adult males in a household in the United States and a mother and offspring living in China. Whether or not this sojourner household prevailed in the Cortez district can be tested both archaeologically and through documentary sources. Again, Hardesty has suggested this approach elsewhere (Elston et al 1982; 251-253). Preliminary observations support the widespread occurrence of the sojourner household type among the Overseas Chinese at Cortez. Few women or children are listed in the available population census records, and there is little evidence of women's or children's artifacts in the archaeological record. More work on this problem will be done during Phase 3 of the Cortez Project.

Acculturation

One way in which adaptive change takes place is through acculturation--

the adoption of new ideas and things from a group's social environment. The conditions under which acculturation takes place are an important part of a general model of adaptive change. Robert Spier (1958a, 1958b) proposed such conditions for the Overseas Chinese in 19th century California; they may be appropriate for understanding acculturation of the Cortez Chinese. Spier's model stipulates that the sojourners accepted "Western" technology only when the activity in which they were engaged (1) was controlled by an American employer who provided the necessary tools, or (2) had no counterpart in their homeland or in their experience. LaLande's (1981) study of placer mining by immigrant Chinese in the Applegate Valley of southern Oregon is illustrative. Here, tools were almost entirely of western origin, including shovels, picks, pans, and cradles (LaLande 1981:101). In the same vein, Spier (1958b: 99-101) shows from company records and contemporary photographs that Chinese railroad laborers in 19th century California used western tools. And in yet another study, the archaeological record suggests that Chinese woodcutters and charcoal makers in the Truckee Basin of the California Sierra Nevada mountains used western tools (Elston et al 1982). On the other hand, Spier's model also stipulates that traditional Chinese behavior was retained in activities that involved "prior experience, self-employment, or employment by Chinese entrepreneurs" (1958b:11). LaLande (1981:106-107) points to fishing technology in 19th century California as an example. The activity was traditional in the homeland of most Overseas Chinese and the technology was transferred almost intact, including boat types and the use of nets. Diet is another sector of traditional behavior that was little affected by acculturation (Spier 1958a). Thus, both Langenwalter (1980) and LaLande (1981) found that traditional Chinese foods and utensils (especially chopsticks, chopping

knives, and kitchen shears) continued to be used in California, except under conditions when they were forced to adopt western ways.

The Overseas Chinese at Cortez were certainly subject to rigid company demands and were engaged in activities for which they had no prior experience--hardrock mining and milling. Company records available to us are less than clear on the subject of what tools were used by the Cortez Chinese, since there is no record of this type of purchase. For this reason, we had to depend almost entirely upon the archaeological record. What we observed is quite similar to what was observed in the Truckee Basin study (Elston et al 1982). Domestic activities associated with food preparation are perhaps least acculturated; tableware and food refuse, for example, appear to be quite traditional. To this must be added gaming and the opium complex, both of which are traditional Chinese and which have been retained by the Cortez Overseas Chinese. Domestic furnishings, however, strongly reflect the process of acculturation. Lamp chimneys, cast iron stove parts, and kerosene cans are examples from the archaeological record.

MODELS OF CULTURAL DRIFT

Long ago, G.E. Hutchinson (1965) stressed the importance of the "ecological theater" in understanding the evolutionary process. Nowhere is this more true than on the mining frontier. The ecological setting can be modelled as a network of "islands" made up of ore bodies, around which human activities are concentrated (e.g., R.M. Morse, The Bandeirantes, page 30, as cited in Hennessy 1978:17). One implication of the island structure of the mining frontier is the potential importance of "sampling error" or "drift" as a source of cultural variation. Drift has long been recognized as a non-deterministic process creating genetic differences among small and isolated breeding populations (Wright 1978). That the same thing can happen to cultural behavior was recognized by Lewis Binford

(1963) in a paper on "Red Ochre" caches of Michigan and has been recently studied in more detail by Cavalli-Sforza and Feldman (1981). In a very general way, the process of cultural drift can be equated with stylistic drift by defining "style" as non-adaptive or adaptively-neutral cultural behavior (Dunnell 1978).

The likelihood that stylistic drift can be invoked as an explanation of observed cultural differences on the mining frontier can be estimated from how closely the ecological theater approximates the "ideal" conditions for drift to take place. Small size and isolation provide the greatest opportunity for drift. In population genetics, the opportunity for drift to occur is estimated from the effective size of the breeding population and from the genetic turnover of the population, usually measured with the amount of in-migration and out-migration (Lasker 1960). A somewhat different approach is required for the assessment of stylistic drift, mostly because of the different mechanism of transmission. The elements of style work through the social structure of a population as a consequence of the social learning mechanism for cultural behavior, in contrast to the breeding mechanism for genetic traits. Cavalli-Sforza and Feldman (1981) draw upon recent work on the diffusion of technological innovations (Rogers and Schoemaker 1971) and on the epidemic spread of contagious diseases (Bailey 1975) to shed light on the nature of cultural transmission. A two stage process is involved. The frequency of social contacts is the key to making individuals aware of the cultural innovation, and role-models are instrumental in the acceptance of the innovation. What this implies is that the boundaries of the populations upon which stylistic drift operates are defined with social criteria that control patterns of social interaction and prestige. Such populations might include kinship groups, ethnic groups, peer groups, age mates, social classes, and the like.

From this discussion it is clear that the "island structure" of the mining frontier for purposes of studying stylistic drift is considerably

more complex than the patchiness of ore bodies. Working with preliminary archaeological and historical data, we have defined the set of cultural "islands" listed in Table 3, using geography, ethnicity, class patterns, and occupational boundaries. The table also gives estimated values for the size and relative isolation of the islands, which allow some approximation of the opportunity for cultural drift to take place on each island. Size has been estimated from 1900 population census records and from the number of archaeologically visible households that could be associated with the islands. The household is the social group within which the most frequent interpersonal contact occurs and can, therefore, usually be treated as a fundamental unit of cultural transmission. An exception to this assumption is the boarding house at Upper Cortez, which may have had a multi-ethnic and multi-occupational composition that reduced the intensity of social intercourse. Normally, however, a simple count of the number of households making up the island at a given time period is a good relative measure of size.

Estimating isolation is more difficult. Geographical distance is one dimension of isolation, since it directly affects the frequency of social contacts. At the same time, however, the relatively small scale of the Cortez Mining District suggests that distance apart should not be the key measure of isolation. This honor probably belongs to social distance, based on the amount of social interaction that takes place across the boundaries of ethnic groups, classes, and the like. Ethnic boundaries are especially likely to have been important in reducing interpersonal contact at Cortez. The "sojourner" attitude of the immigrant Chinese miners and mill workers, for example, is expected to have created a relatively impermeable barrier to cultural diffusion. That is, most Chinese immigrating

TABLE 3: A MODEL OF STYLISTIC DRIFT IN THE CORTEZ DISTRICT

<u>Cultural Island</u>	<u>Size</u>	<u>Isolation</u>	<u>Opportunity</u>
Wenban's Mansion	Small	High	High
Lower Cortez Chinese	Small	High	High
Lower Cortez Italians	Small	Moderate	Moderate
Lower Cortez Mexicans	Small	Moderate	Moderate
Upper Cortez Chinese	Moderate	High	Moderate
Upper Cortez Anglos	Large	Low	Low
Upper Cortez Blacks	Moderate	Moderate	Moderate
Garrison Mine Chinese	Large	High	Moderate
Williams Salt Works	Small	High	High
Old Cortez	Large	Low	Low
Saint Louis	Small	Unknown	Unknown
Outlying Woodcutters	Small	Moderate	Moderate

to the United States during the 19th and early 20th centuries planned to return to China as soon as possible and, for this reason, endeavored to remain linguistically and culturally "pure" (Sui 1952). In contrast, some ethnic groups with a common linguistic and cultural heritage are expected to have had osmotic boundaries and to exchange ideas rather freely. Cornish, Scottish, Canadians, and Anglo-Americans are such groups at Cortez. Class differences are also important. Wenban's mansion has been defined as a cultural island in the Cortez district on this basis; Wenban's social and economic position as the owner and manager of the largest mining operation in the district during the 19th century and his connections to the urban Victorian cultural tradition of the western United States should have effectively isolated him and his family.

The opportunity for stylistic drift to take place has then been estimated for each island on the basis of size and isolation. Of the 12 islands defined, only three appear to have the ecological theaters conducive to the operation of drift. This model of stylistic change is, of course, only preliminary and remains to be tested. What the model implies for the archaeological record is, however, straightforward. If drift is the principal cause of cultural variation in some cases, then the three islands with the highest opportunity values should differ from the others in a number of ways. First of all, the cultural differences among the three should increase over time. The other islands are expected to show no such divergence. Ordering the households into a chronological sequence is a prerequisite for testing this implication; the identification and dating of households with multiple occupations is, however, an extremely difficult task in the Cortez district because of the short time periods involved. A simple measure of similarity among the artifact assemblages such as the

Brainerd-Robinson Index (Robinson 1951) can then be used to compare differences among households from one time period to the next. Secondly, the cultural differences among the households within each of the three islands with high drift opportunity values should decrease over time. That is, the households should become more and more alike. The islands with lower opportunity values are not expected to show this trend.

AN ARCHAEOLOGICAL MODEL OF VICTORIANISM ON THE NEVADA MINING FRONTIER

Few places are geographically as remote from the urban centers of Victorian Culture as the Nevada mining frontier. Yet the Culture flourished in such "boom towns" as Virginia City, Austin, Eureka, and Pioche. Virginia City, for example, boasted opera houses featuring performances by Jenny Lind and Edwin Booth; churches; parochial schools and a convent; hotels up to six stories high and the first elevator on the West Coast; fine restaurants serving fresh seafood from the East and West Coasts; several newspapers; electric and gas companies; and a water system considered to be a 19th Century engineering marvel (see, for example, Lord 1883). Despite their remoteness, these towns were linked into a large scale logistics and communications network that encouraged their participation in Victorian Culture. Outside such "urban enclaves," however, little is known about the expression of Victorianism on the mining frontier.

VICTORIANISM IN THE CORTEZ DISTRICT

Although historical and archaeological work on the Cortez district is just beginning, enough information has been accumulated to suggest some of the ways in which the Cortez miners participated in Victorian Culture. The concept of "interaction sphere" (Caldwell 1965; MacNeish et al 1975) is appropriate here. Each interaction sphere defines a different population of Cortez miners and a different set of relationships with Victorian Culture. A preliminary model of the district includes three kinds of interaction spheres: (1) the Classic Sphere; (2) the Sojourner's Sphere; and (3) the Folk Culture Spheres.

The Classic Victorian Sphere.

The small elite of the Cortez district, mostly formed by the mine

owners and managers, are expected to participate rather fully in classic urban Victorian Culture. Perhaps the best example is Simeon Wenban, who more or less single-handedly developed the district into one of Nevada's most successful. Wenban was a Victorian "hero" in the Horatio Alger sense, achieving economic success through hard work, self-sacrifice, innovation, and organization (Bancroft 1889). He was born in County Kent, England, in 1824 and migrated with his family to the United States at the age of 4. In 1854, Wenban moved to the California goldfields to seek his fortune and supervised a mill in Virginia City, Nevada, in 1862 before going to Cortez. During his more than 30 years residence in Cortez, Wenban played the role of the proper Victorian gentleman, visiting and participating in the haute cuisine of Virginia City, San Francisco, and Europe as often as possible and establishing a suitable house in the district for his wife and children. Wenban's house was a large two-story redwood structure with high ceilings and a porch, surrounded by an irrigated lawn and locust trees--a created "garden" in the true Victorian sense. The house also included running water from a gravity-fed water system, among other amenities. Today, Wenban's mansion is visible as a stone foundation, cellar, trash dump, and remains of out buildings and offers the possibility of exploring the realm of classic Victorianism on the rural mining frontier through the archaeological record.

The Sojourners Sphere.

If the Cortez elite participated fully in Classic Victorian Culture, a large group of Cortez laborers participated almost not at all--the immigrant Chinese. Sometime between 1869 and 1873 Simeon Wenban replaced the Cornish and Welsh miners previously employed in the district with the "less quarrelsome" and cheaper immigrant Chinese who were readily available

as a source of labor following the completion of the Central Pacific railroad. Unlike most immigrants to the United States, the Chinese did not intend to stay. For this reason, the concept of "sojourner" has been applied to them (Sui 1952). The concept underlies their efforts to maintain traditional values and lifestyles as much as possible, including the formation of geographically localized racial/cultural settlements ("Chinatowns"), which minimized social interaction with westerners, allowed retention of their language, and encouraged strong ethnocentric sentiments about their homeland to be expressed (Sui 1952:35-37). To the extent that the acceptance of Victorianism implies the transmission of a distinctive set of values, the Chinese community at Cortez was the most resistant of all the ethnic groups; however, this does not imply that they accepted no part of what Victorianism had to offer. Several years ago, Spier (1958b) gathered documentary evidence that immigrant Chinese communities in 19th century California most rapidly adopted western ways in the technological sector whenever their American employer required that they do so or when they engaged in occupations for which they had no previous experience. Additional support for this idea has been found in the documentary and archaeological records of Chinese engaged in placer mining in Oregon (LaLande 1981) and in charcoal making in the Sierra Nevada (Elston et al 1982). At Cortez, the immigrant Chinese hardrock miners and mill workers are expected to conform to the technological requirements of these occupations, along with Simeon Wenban's Victorian ideas about work organization and scheduling. Other sectors of traditional Chinese culture are much more resistant to change. For example, Spier (1958a) found that the subsistence patterns of 19th century California Chinese changed very little except when they were forced to do so or under similar stress conditions. Langenwalter (1980) provides

additional support for this idea. At Cortez, preliminary observations of the Chinese neighborhood at Shoshone Wells suggests the traditional diet. Some company store records are available for the late 19th century and show no traditional Chinese commodities, other than pork and rice; however, the 1900 census lists several Chinese engaged in "store owner" and "store clerk" occupations, which suggests that the Chinese community at Cortez may have been integrated into a separate retailing and wholesaling system.

Another sector of immigrant Chinese culture which changed rather dramatically is household organization. The traditional Chinese patrilineal, patrilocal, patriarchal and patrimonial kin groups (Freedman 1966) were replaced in the New World by "sojourner households" made up mostly of multiple males (Sung 1967) and by "sojourner communities" made up of geographically localized sojourner households integrated by common surnames, speech, and place of origin (Crissman 1967; Weiss 1974). In the face of this rather pervasive social modification is the shift toward the Victorian "cult of domesticity" with its nuclear family households. Demographic data from the 1900 population census of the Cortez district gives an idea of how strongly this key element of Victorian Culture was insidiously invading the Sojourner household. In the Garrison Mine precinct, there is no documentary evidence of change. All of the Chinese households are typical sojourner type--multiple males, listed as "partners." A similar situation prevails in the Cortez precinct. Here, 82 percent of all the Chinese households were either single or multiple males or females; however, the remaining households were extended, including a husband and wife and one or more partners or boarders. In addition, all of the Chinese households in both precincts were censused in sequence, suggesting that they were clustered into traditional sojourner neighborhoods.

All in all, the Cortez Chinese community was resilient in its relations with the carriers of Victorian Culture, changing to accommodate the labor demands of management but maintaining a remarkable cultural integrity. The strength of this integrity is illustrated by a local story about the Chinese cemetery at Cortez. Sometime in the 1920's, so the story goes, a long caravan of Model T's arrived at Cortez; their occupants exhumed the graves and took the remains to San Francisco, where they were to be shipped back to China for final burial. These sojourners had returned home at last.

Folk Culture Spheres.

Between the Chinese and the Cortez elite stood an ethnic mix of laborers who interacted with Victorianism in an entirely different way. In the beginning, immigrants from England, Scandinavia, Italy, Mexico, and other places, as well as American Indians and American Blacks, carried "folk cultures" that were maintained and that interacted in different ways with Victorian Culture. For example, the Anglo folk cultures, which carried many of the fundamental Victorian values, were more receptive to Victorianism than non-Anglo folk cultures. For this reason, the early mining camps of Saint Louis, Shoshone Wells, and Cortez are expected to have archaeological evidence of ethnic neighborhoods with rather strong folk cultures, each of which is interacting with American Victorian Culture in its own unique way. Support for such an interpretation comes from our excavations at Shoshone Wells in 1981 and 1982. Here, three "neighborhoods" are visible. One appears to be associated with an early community of Anglos and Anglo-Americans that carried the fundamental values of Victorianism. This neighborhood, for example, could be readily distinguished from the others in its "planned" appearance, including the similar size, floor plan, spacing, and linear alignment of the houses.

Contemporary newspaper accounts suggest another planned town in Mill Canyon several miles away at about the same time in the 1860's. The second ethnic neighborhood at Shoshone Wells is Chinese. As might be anticipated from the earlier discussion, the archaeological record here suggests an entirely different interaction sphere--with clustered houses around walk-in wells and an artifact assemblage of a Sojourner Culture. Probably dating between 1872 and 1910, this settlement is contemporaneous with what appears to be an Italian neighborhood situated on a hillside overlooking the other two. The Italian community may have engaged in woodcutting activities and definitely participated in a different interaction sphere than the immigrant Chinese and the semi-Victorian Anglos. Trading ties to Italy are indicated by the occurrence of such things as Italian Bitters bottles, and the maintenance of an Italian folk culture is supported by the discovery of outdoor earth ovens associated with two of the houses.

THE SYNCRETIC FRONTIER CULTURE

Around the turn-of-the-century, however, the folk cultures in the Cortez Mining District were being transformed into a single, rather homogeneous pattern of behavior that contained some elements of Classic Victorianism, some elements of the folk cultures, and some elements probably arising from adaptation to the frontier environment. For lack of a better term, we are calling this the 'SYNCRETIC FRONTIER CULTURE' or SFC. At Cortez, the SFC appears to be the transition between the Guided Age and the Classic American Culture of the Post-World War Two period. The 1900 population census of two precincts in the district suggests how the SFC is emerging. Perhaps most important is the evidence that ethnic neighborhoods are breaking down. In both the Garrison and Cortez precincts, multiple male households included individuals from different ethnic origins. One

household in the Garrison precinct, for example, had six partners--two Italians, one Portuguese, one Swede, one Canadian and one Euroamerican. In addition, the census manuscripts show no tendency for households of the same ethnic origin to be next to one another.

The "insidious influence" of Victorianism is everywhere apparent in the emerging SFC but the Victorian themes have been reworked in distinctive ways. In the remainder of this paper, four such themes are considered in some detail: the cult of domesticity, conspicuous consumption, temperance, and rationality and order.

The Cult of Domesticity.

In the 1900 population census, about 50 percent of the households were organized around a nuclear family, although several included an in-law or a boarder or a servant as well. We have no detailed documentary data on the nuclear households at Cortez, but an observer of similar households in Virginia City during the late 1880's noted that "...when a woman has charge of the house the somewhat barren rooms are often transformed into cosy lodgings by bright-colored curtains, soft carpets, prettily-figured wallpaper, and the hundred lesser additions which, in tasteful combination, make even a rude cabin interior pleasing to the eye" (Lord 1883:272). That this observation can be extended to Cortez is supported by such archaeological data from Lower Cortez as wallpaper and plaster fragments and even a large section of a carpet! At the same time, it is clear that such "domestication" was strongly moderated by the adaptive requirements of the frontier environment. Probably half of the nuclear family households included a relative or a boarder. And nearly 50 percent of the households in the Garrison precinct that were not Chinese were organized into multiple male groups or were single males. The multiple male households were made up of "partners"

from a variety of ethnic origins. In addition, some of the households in both precincts were boarding houses. All of these household organizations reflect adaptation to the male-dominated sex ratios on the mining frontier.

Conspicuous Consumption.

Another Victorian theme that is modified by the Frontier Syncretic Culture is conspicuous consumption. In its classic expression, Victorian Culture is associated with large quantities of material culture that are rapidly disposed of and replaced with "new" items. Nothing reflects this value more than the development of mass advertising to market products on a large scale during the late 19th and early 20th Centuries (Trachtenberg 1982: 135-139). Most important is the shift from the advertisement of a few luxury goods to the advertisement of "mass-produced goods for daily use" (Trachtenberg 1982: 135-139). Archaeologically, the conspicuous consumption value is visible in trash dumps that accumulate at an enormous rate. Indeed, in the city the problem of trash disposal that emerged was especially acute and led to an elaborate system of trash collection and disposal of which we are all familiar today. The frontier expression of conspicuous consumption is, in our model, also marked by the increasingly rapid accumulation of trash dumps; however, the reuse of mass-produced commodities is much more common here than in the Victorian heartland. At Shoshone Wells, for example, the linear settlement of the 1860's occupation is associated with very little trash, suggesting that neither the value nor the appropriate logistics network had yet been established in the Cortez district. In contrast, the early 20th Century occupation is easily visible in large and diverse trash dumps scattered throughout the site. At the same time, there is abundant archaeological evidence of mass-produced commodities being reused even during the 20th Century.

Temperance

Temperance is another Classic theme that was reformed and then incorporated into Syncretic Frontier Culture. Company store records and the common occurrence of liquor and other alcoholic beverage bottles suggest that the consumption of alcohol continued to be an important part of the mining frontier lifestyle well into the 20th century. And saloons were an important part of the miner's life, to judge from photos and statements in a variety of documentary sources. At the same time, there does seem to be a decline in the use of alcohol from earlier periods. Teague (1980:140) has observed a similar phenomenon in the Vekol Hills settlements in southern Arizona. He attributes the shift either to a shift in drinking patterns (a change in where drinking takes place) or to a shift in social values-- including the influence of the rural Victorian values that led to Prohibition. Support for Teague's observations is found in the archaeological record of the Bullfrog Mine settlement in Death Valley National Monument (Hardesty 1981). Here, trash dumps and structures dating from 1905 until the Second World War contain very little evidence of the use of alcohol. At Cortez, the expansion of the cult of domesticity during the turn-of-the-century probably had a lot to do with temperance patterns. The "domesticating" influence of nuclear families upon drinking habits is, in fact, expected to have created a dichotomy between temperant and hard-drinking households. Archaeologically, therefore, our model of the Syncretic Frontier Culture predicts an increase in inter-site diversity among households in the consumption of alcohol. In passing, we should also note that a certain amount of temperance was imposed on the Cortez miners by the constraints of a very rigid work schedule demanded by Victorian corporation values.

Rationality and Order

Finally, the key Victorian value of rationality and order is modified and incorporated into the Syncretic Frontier Culture. Teague (1980:140-145, 149-153) gives an example from the Vekol Hills settlements in southern Arizona by arguing that an apparent shift in the building arrangements of mining camps from rather haphazard to a more rigid, linear plan over time reflects the influence of the Victorian Culture. Much of the same shift is visible at Cortez. The early "linear neighborhood" at Shoshone Wells, for example, and the "planned" town at Old Cortez seem to be expressions of a rather strong Victorian Culture in the 1860's, which then gave way to the unplanned traditional communities of the immigrant Chinese and other non-Anglo ethnic groups in the 1870's and 1880's; these were, in turn, replaced by the grid-like pattern of Upper Cortez during the early part of the 20th Century. At the same time, the Victorian emphasis upon order is considerably attenuated in the Cortez district by idiosyncracies of individual households, a mining frontier pattern noted by Kelly (1978). Such idiosyncrasy is perhaps visible in the variability of architectural construction methods. Within a Victorian community, construction methods are expected to be rather homogeneous; for that reason, construction variability at Cortez should be low during the "Victorian" early period, high during the Folk Culture period, and low during the more Victorian late period. This does not seem to be the case, however. The variability of construction methods seems to be highest during the Syncretic Frontier Culture, probably because of reuse of early houses and because of a stress upon individual idiosyncrasy. A blend of "idiosyncrasy" and "order" is, then, an underlying theme of the transition between Victorianism and Classic American Culture at Cortez.

CONCLUSIONS

In conclusion, Victorianism on the rural mining frontier has many faces. The Cortez experience seems to confirm what Trachtenberg (1982: 70-100) has said about the role of ethnic minorities and the working class in bringing about the demise of the Guided Age. Certainly, the inherent opposition of many folk cultures to urban, middle-class Anglo values must have created social processes that brought about the transition to Classic America. Hopefully, the work that we are doing in the Cortez Mining District will shed light on the dynamics of such processes.

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