TEST EXCAVATIONS

at the Happy Face Site 26CK1481 (CR-NV-05-634)
and the Barbecue Site 26CK1482 (CR-NV-05-635).
Hidden Valley, within the Muddy Mountains,
Clark County, Nevada.

TEST EXCAVATIONS AT THE HAPPY FACE SITE 26CK1481 (CR-NV-05-634) AND THE BARBECUE SITE 26CK1482 (CR-NV-05-635), HIDDEN VALLEY WITHIN THE MUDDY MOUNTAINS, CLARK COUNTY, NEVADA

Prepared for:

The Las Vegas District Office,
Bureau of Land Management,
P.O. Box 5400,
Las Vegas, Nevada 89102

Contract Number YA-553-CTI-88

September 1982

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I. ACKNOWLEDGEMENTS

The fieldwork, laboratory research and report preparation for this project were conducted by members of the ARC staff, assisted by specialists in other fields working at the University of Nevada, Las Vegas. The following is a list of individuals who participated in this research project with an indication of their major areas of contribution, although some individuals assisted in many ways too numerous to include.

Dr. Richard H. Brooks served as Principal Investigator and Robert R. Ellis acted as the senior archaeologist during the field, laboratory and report writing phases of the investigation. Field crew members consisted of Lynda M. Brennan, Rickie Sue Sedgwick, Mark Rojas, Anne DuBarton and Michael Mason. Additionally, Teri Ann Swearingen was botanical consultant during fieldwork. Those personnel working through the analysis and reporting phases included Dennis Jenkins, ceramics; Lynda M. Brennan and Rickie Sue Sedgwick, material processing and data organization; Dr. Richard H. Brooks, bone analysis; Teri Ann Swearingen, seed identification and environmental data; Eileen M. Green, rock art, illustrations and descriptive analysis; and Robert R. Ellis, illustrations and artifactual analysis. Other assistance was provided by Kory Vincent, Carolyn Brooks, Leisa Baldwin in typing, and Pattie Baldwin in management, as well as by Cary Stevens and Randy Tunnell in photographic processing. Dr. Martha Knack, Assistant Professor of Anthropology, University of Nevada, Las Vegas, provided consultation on artifactual distribution. Dr. Sheilagh Brooks, Professor of Anthropology, University of Nevada, Las Vegas, served as overall editor.

Mr. Stan Rolf, the Las Vegas District Archaeologist, Bureau of Land Management, who served as COAR, visited during the field work phase of the project. On October 7, 1981, he advised the ARC field crew in establishing the location of excavation areas and between October 13-14, 1981, he oversaw the progress of excavation at sites 26CK1481 and 1482.

II. INTRODUCTION

During October, 1982, the Archaeological Research Center (ARC) staff performed test excavations on two sites according to Contrat Number YA-553-C11-88 entitled the "Preliminary Archaeological Testing Investigation of Two Rock-shelter Sites in Hidden Valley in the Muddy Mountains of Southern Nevada...," received from the Bureau of Land Management, Denver Service Center, Colorado. The project was funded to obtain information concerning National Register eligibility, since the sites had recently been vandalized and potential existed for ongoing disturbances. This report reviews the findings at these two sites as a result of field and laboratory analyses and includes recommendation for further research.

Sometime during the 1930's, local access roads were graded by the Civilian Conservation Corps in the construction of range-stock, water catchment basins. One of these roads, in the southeastern part of Hidden Valley, is now relatively inaccessible except through use of a four-wheel drive vehicle. Until recently, the difficulty of access into Hidden Valley had provided protection for archaeological sites, but within the past years, several major sites have undergone increased vandalism.

Apparently, none of the earlier archaeologists in southern Nevada discovered Hidden Valley, although just to the north in the Valley of Fire, sites were recognized and recorded. As early as 1969, University of Nevada, Las Vegas (UNLV) Anthropology faculty members noted sites in the Hidden Valley area, but only during the latter part of the 1970's were any sites recorded by UNLV students, at first through a seismic line survey, then later by archaeological field classes. In the summer of 1980, ARC (UNLV) was contracted by the Las Vegas District Office of the Bureau of Land Management (BLM) to conduct an intensive survey within Hidden Valley, which is incorporated as a part of the Overthrust Belt Cultural Resource Inventory, Virgin Valley Planning Unit, ARC Report Number 1-1-30. Additional cultural resource sites were documented in the area and, since then, vandals have been reported working cultural deposits at two of the sites. The unauthorized individuals were not observed by the visiting UNLV personnel and by the time the fresh excavation pits were found, these individuals had left Hidden Valley. Subsequently, it was brought to the attention of the Las Vegas District Office, Bureau of Land Management that test excavations should be conducted on the two most disturbed sites, 26CK1481 and 1482. The results and findings, based on the October, 1981 excavations are presented in this report.

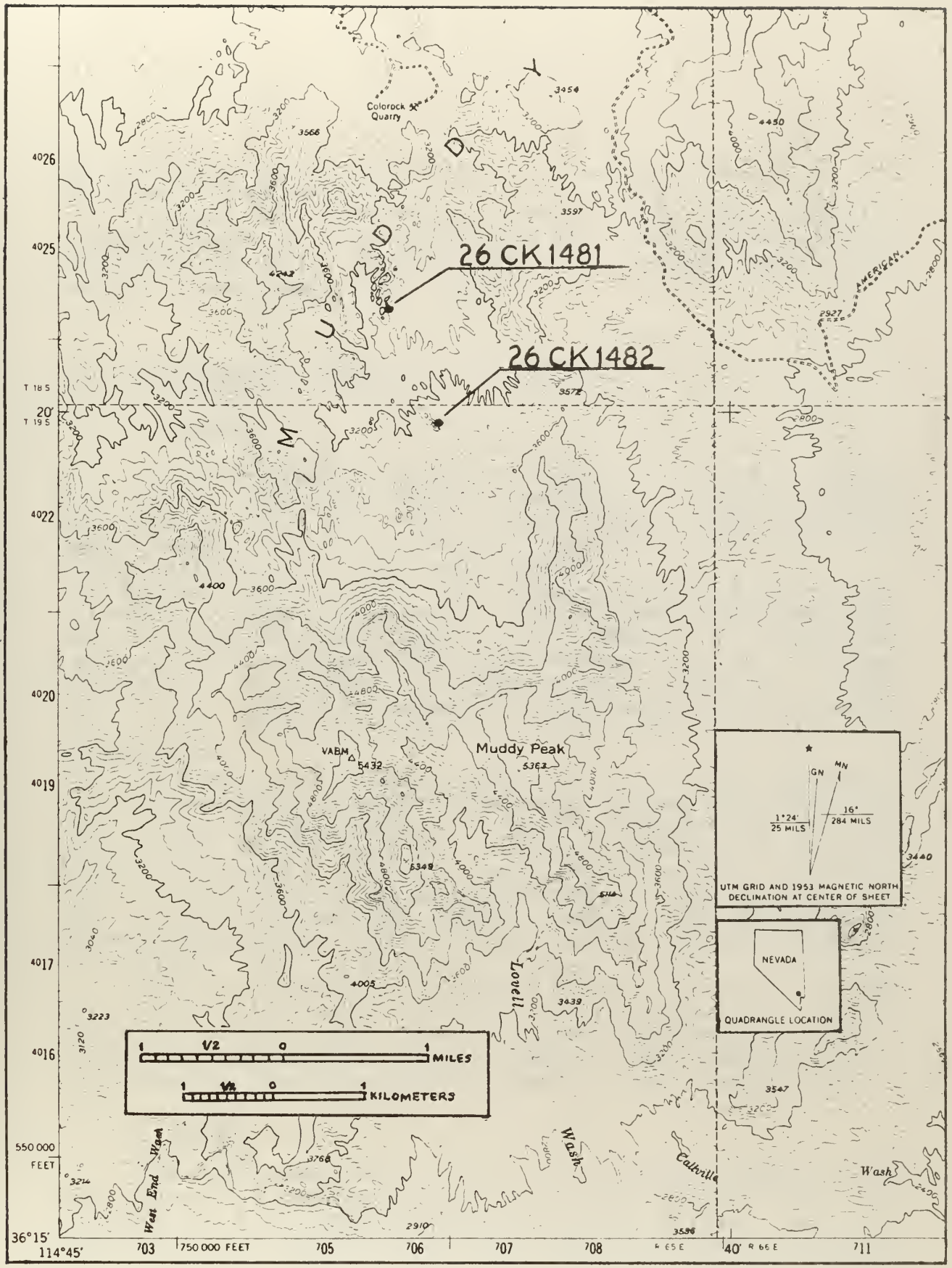
Authority to conduct archaeological investigations in Nevada has been granted to Dr. Richard H. Brooks (Archaeological Research Center, University of Nevada, Las Vegas) through the State Antiquities Permit Number 182 issued by the Nevada State Museum and to the University of Nevada, Las Vegas through Federal Antiquities Permit Number 81-NV-298 issued by the Department of the Interior pursuant to the Archaeological Resources Protection Act of 1979.

During the laboratory examination of the lithic artifactual materials, it was apparent that currently there exists no adequate terminology to describe the dual functional use pattern being observed. Not all lithic tools from the two Hidden Valley sites demonstrated this binary function in their wear patterns. A sufficient sample did show a dual function so that the methodological terminology explained in the section on Stone Tools was devised. It is proposed that this methodology will be utilized in the analysis of the lithic artifacts recovered during the test-pitting conducted at sites in the California Wash area. Section IX, Stone Tools, then is presented in this report as a possible means of functionally identifying tools which have been utilized prehistorically for two (or more) purposes, and which demonstrated these in the observable wear patternsn. This is not meant to supercede other lithic classifications but only as a useful means of clarifying the complexity of prehistoric lithic usages in southern Nevada.

III. LOCATION

The two sites occur in the southwestern portion of the Muddy Mountains within a remote area termed Hidden Valley just west of White Basin (Map 1). The locality is about 30 air miles northeast of Las Vegas, 15 air miles west of Lake Mead, and 10 air miles southwest of Atlatl Rock, Valley of Fire State Park. It is reached via a turn-off from the old American Borax Road leading into White Basin. Local physiographic place names include Buffington Pockets and Colorock Quarry, just north of Hidden Valley, and Muddy Peak, which forms a 5432 foot (amsl) summit at the southern end of the valley. The two archaeological sites occur within land administered by the Bureau of Land Management, Las Vegas District Office, Nevada (Figures 1 and 2).

Site 26CK1481 (CR-NV-05-634) is located in Township 18 South, Range 65 East in the Southeast 1/4 of the Southeast 1/4 of Section 34. Site 26CK1482 (CR-NV-05-635) is located in Township 19 South, Range 65 East, in the Northwest 1/4 of



MAP 1: PROJECT LOCATION

Taken from Muddy Peak 15' USGS Map (1953)

the Northwest 1/4, Section 2 and in the Northeast 1/4 of the Northeast 1/4 of Section 3.

[There are three other "Hidden Valley" place names in southern Nevada in different locales. The Hidden Valley discussed here is situated in the southern range of the Muddy Mountains near White Basin.]

IV. ENVIRONMENTAL SETTING

A. Geology

The Muddy Mountains are composed of several rugged fault blocks which form abrupt boundaries. The altitudes are between 2500 feet and 4000 feet, (amsl) with four peaks reaching over 5000 feet. The major portion of the floor of Hidden Valley lies at 3200 feet (amsl).

Rocks of the high mountain mass are limestone and dolomite of Cambrian, Ordovician, Devonian, Mississippian and Pennsylvanian ages (Longwell et al 1965). To the north and south of the Muddy Peak most Paleozoic strata have been altered by thrust faulting and subsequent erosion. These area, i.e. Buffington Pocket, contain exposures of Jurassic age Aztec sandstone and form the northern enclosure for Hidden Valley.

In the valley, the major relief is a predominantly sandy basin with weathered sandstone pinnacles and outcrops. The valley floor consists of fine to medium-grain alluvium derived from Muddy Peak carbonates, as well as aeolian deposited sands. Within the area there were no mineral deposits to exploit, although thick beds of gypsum occur in all of the surrounding country. Along the Virgin River drainage deposits of salt were utilized by Indians (Longwell et al 1965).

Extensive work on the Muddy Mountain geology has been performed by Longwell (1928), Longwell et al (1965), Bohannon (1977, 1979) and Bohannon and Bachhuber (1979). Current work by Bohannon (1979) suggests that the geology of the region is complex and still remains poorly understood.

B. Soils

For the most part, soils in the Muddy Mountains are non-existent or shallow derivatives of nearby bedrock. Two soil units are represented in Hidden Valley: soils of alluvial fans, dissected terraces, low hills and mountain drainages are referred to as Bard-Colorock-Tonopah; whereas

FIGURE 1:

The view overlooks the central portion of Hidden Valley, looking west. The vegetation is principally blackbrush, evenly distributed on the alluviated valley floor and its slopes. Numerous caves occur in all bedrock exposures on the west side of the valley, only a few of which had been prehistorically occupied. The two excavated sites occur elsewhere in the valley, 26CK1481 at the right and 26CK1482 at the left.

FIGURE 2:

The photograph was taken in the central part of the valley, looking northwest towards its drainage outlet. Site 26CK1481 is located at the right (arrow) and site 26CK1482 at the left (arrow).

soils on mountains, foothills and moderately steep slopes are called Rockland-St. Thomas (Bagley 1980).

Bard-Colorock-Tonopah soils typically occur between 1300 and 3000 foot elevations (amsl), where average precipitation is four to six inches annually. Usually, these soils have a fairly well drained surface of gravelly to sandy loam covering a lime hardpan. The depth of surface layer and drainage are dependent on slope gradient. The Rockland-St. Thomas unit is found on large, steep mountain masses, ranging in elevation from 2000 to 6000 feet (amsl). The Rockland unit occurs on limestone exposures and is generally barren bedrock. The St. Thomas soils develop on foothills and mountains where the surface layer is cobbly and shallow, as well as on steep unweathered limestone bedrock.

C. Climate

The climate of the Hidden Valley area is typified by temperature extremes and sporadic precipitation. Seasons are well defined with summer temperatures in the 100 degrees-plus bracket and winter temperatures frequently below freezing. Snow is uncommon; however, a light cover remained over a 24-hour period in March, 1979, at elevations below 2000 feet (Swearingen 1981).

Climatological data are recorded daily at Valley of Fire State Park and Las Vegas, Clark County, Nevada. Average temperature, based on a 38-year period, was 65.9 degrees Fahrenheit for Las Vegas and 68.0 degrees Fahrenheit for Valley of Fire. Cold air drainage in Hidden Valley may lower the local average several degrees, but there are no weather data available to substantiate this. For a 38-year average in Las Vegas the annual precipitation was four inches and predominantly fell as rain (Ruffner and Bair 1977). Summer thundershowers are intense, infrequent and strongly localized over the Muddy Peak mountain mass.

D. Hydrology

Permanent water sources are confined to the Virgin and Muddy River drainages. Several springs occur along the east fault scarp of Muddy Mountain approximately 33.8 kilometers (21.0 miles) from Hidden Valley.

The Muddy River, 45.1 kilometers (28.0 miles) north of the valley, is fed by thermal springs originating in the nearby Arrow Canyon Range. This river is the most distant permanent source of water in the immediate vicinity. Historically, the Virgin River flowed along the entire eastern margin of the Muddy Mountain region, within 27.4

kilometers (17.0 miles) of the Hidden Valley area. The Virgin River, which originates in southwestern Utah, and before the construction of Hoover Dam, flowed into the Colorado River. This confluence is now obfuscated by an upper arm of Lake Mead.

Six springs occur at the eastern and southeastern base of the Muddy Mountain fault scarp. Two are unnamed, and are little more than "bee springs". Blue Point and Rogers Springs are larger, permanent thermal springs with clear pools. Once an important water source for bighorn sheep (McQuivey 1976), these pools are now exploited for recreational use, largely excluding the native wildlife. These four springs lie approximately 32.8 kilometers (20.0 miles) from Hidden Valley. Between Rogers and Bitter Spring, along the east side of Rogers Ridge, is another unnamed, perennial spring. Bitter Spring in Echo Wash, only 17.7 kilometers (11.0 miles) away, is a less palatable perennial water source. This thermal seep surfaces on gypsum soils, resulting in bitter, mineral-charged waters, which disappear underground within a short distance. Bitter Spring is presently utilized by burros, wild horses, small mammals and infrequently by cattle.

The only immediately available sources of water in Hidden Valley were provided by tinajas: natural catchments in bedrock, particularly the Aztec sandstone. Being ephemeral, these sources were and are unreliable, although McQuivery (1976) suggests these natural catchments are responsible for the bighorn population present in the Muddy Peak area.

E. Vegetation

Patterns of association among plants in the Muddy Mountains are complex, reflecting the effects of climate, substrate and physiography. In Hidden Valley, as in other areas, plant distributions are controlled primarily by climate and secondarily by edaphic factors. The vegetation is divided into broad, regional associations or zones and further subdivided into several plant communities. These zones are not sharply bounded, but overlap in ecotones along an elevational gradient.

The macro-classification units (zones) of Billings' are applicable in describing the major vegetation types found within the Muddy Mountains. Three of Billings (1951) zones are represented in Hidden Valley; the Cresote Bush, Shadscale and Sagebrush Zones.

In Hidden Valley, the Creosote Bush Zone is found in arroyos and along the upper margin of the bajadas but in patchy distribution. The Shadscale Zone is represented by a nearly pure stand of Coleogyne ramosissima (blackbrush), covering the entire valley lowland from 900 meters to 1200 meters (2952-3936 feet amsl). Interdigitating with this zone at 1000 meters (3280 feet amsl), and becoming a distinct zone by 1200 meters (3936 feet amsl), is the Sagebrush Zone. Depending on topography (e.g. Mixed Cliff Semishrub), an azonal community may cross through one or more of these vegetation zones.

Communities develop and persist as a result "... of smaller environmental limits of the principal dominants" (Billings 1951). Water courses and steep slopes, with their concomitant microclimates become occupied by specific communities.

The Muddy Mountains lie along the broad transition between the Larrea vegetation of the Mojave Desert and the Artemisia vegetation of the Great Basin, Desert recognized by Beatley (1975) and Billings (1949, 1951). Within drainage basins, the climates and vegetation patterns are considered by some (Beatley 1975) to be linked with air circulation. In open basins, cold air moves downslope at night and out through the drainage outlet. In closed basins, the cold air accumulates in lowlands similar to a lake (waters in a depression). Major controls on vegetation patterns are dependent on depth and fluctuation of the level of the cold air lake.

In Hidden Valley, the lack of Atriplex (shadscale) as a zonal dominant may be due to substrate deficiencies. According to Billings (1949), Atriplex is replaced geographically by Coleogyne (blackbrush) as a southern intermediate transition taxon. However, the increased rainfall received over this isolated basin from Muddy Peak may be important in the localized distribution of blackbrush. Beatley (1975) identifies Coleogyne as a Mojavean assemblage which occurs in an area of rainfall exceeding that tolerated by Larrea and Atriplex.

Table 1 lists the vegetation zones found in Hidden Valley, along with their inclusive communities. Following this is a description of each community with a list of the most common species. Table 2 lists species found in the Hidden Valley vicinity with potential foraging value for hunting and gathering peoples.

TABLE 1
VEGETATION REPRESENTED IN HIDDEN VALLEY
(Swearingen 1981)

Creosote Bush Zone		
	Communities:	Arroyo Woodland Creosote Bush Scrub
Shadscale Zone		
	Community:	Blackbrush Scrub
Sagebrush Zone		
	Community:	Sagebrush Scrub
Azonal		
	Community:	Mixed Cliff Semishrub

Arroyo Woodland

Vegetation along drainages and intermittent streams of the bajadas is of small, microphyllous, deciduous trees. Conspicuous phreatophytes are:

Acacia greggii
Chilopsis linearis
Prosopis glandulosa torreyana
P. pubescens

Creosote Bush Scrub

Typically an open, low shrub community dominated by *Larrea tridentata* (creosote bush), with *Ambrosia dumosa* (bur-sage) occurring as a co-dominant. Creosote occupies well-drained, non-alkaline soils of rocky slopes, bajadas and valley floors. Major associates are:

Acamptopappus sphaerocephalus
Amphippappus fremontii
Aristida purpurea
Atriplex canescens
Ceratoides lanata
Encelia virginensis
Ephedra spp.
Eriogonum inflatum
Thamnosma montana
Grayia spinosa
Hymenoclea salsola
Lepidium fremontii
Lycium andersonii
L. cooperi
Menodora spinescens
Opuntia spp.
Psorothamnus fremontii
Yucca schidigera

Blackbrush Scrub

This community is dominated by Coleogyne ramosissima, yielding closed, dense, uniform stands. Associates are:

Ephedra nevadensis
Grayia spinosa
Krameria grayi
Lycium cooperi
Menodora spinescens
Prunus fasciculatus

Sagebrush Scrub

Sagebrush only occupies higher elevations surrounding Hidden Valley, generally above 1200 meters (3936 feet amsl). Sagebrush scrub is an open, low silvery-gray scrub growth dominated by Atremisia tridentata. Typical associate species are:

Atriplex canescens
Ceratoides lanata
Chrysothamnus nauseosus
Cercocarpus intricatus
Cowania mexicana
Fallugia paradoxa
Hilaria rigida
Muhlenbergia porteri

Mixed Cliff Semishrub

Rock crevices, bare rocky outcrops and steep cliff faces support a community of shrubs, perennial herbs and ferns which characteristically lack dominance by any one species. Recurring petrophile species include:

Agave utahensis nevadensis
Arenaria macradenia
Buddleja utahensis
Cercocarpus intricatus
Cheilanthes feei
Encelia farinosa
Eucnide urens
Ferocactus acanthodes
Galium stellatum
Hazardia brickellioides
Hedeoma nana
Lomatium scabrum
Notholaena jonesii
Penstemon eatonii
Perityle megalocephala
Petrophytum caespitosum
Pluerocoronis pluriseta
Scophulophila rixfordii
Symphoriocarpus longiflorus

TABLE 2
EDIBLE TAXA FOUND IN THE HIDDEN VALLEY AREA

Acacia	Mentzelia
Agave	Montia
Agropyron	Oenothera
Amaranthus	Opuntia
Artemisia	Orobanche
Asclepias	Oryzopsis
Atriplex	Pectis
Calochortus	Physalis
Castilleja	Plantago
Cerococarpus	Polygonum
Cirsium	Prosopis
Cowania	Prunus
Cucurbita	Rhus
Cycloloma	Ribes
Descurainia	Rumex
Echinocactus	Salsola
Echinocereus	Salvia
Ephedra	Sarcostemma
Eriogonum	Sisymbrium
Erodium	Sporobolus
Lepidium	Stanleya
Linum	Symphoriocarpus
Lomatium	Thysanocarpus
Lycium	Yucca
Lygodesmia	

Of particular interest with reference to edible species is the occurrence of Agave utahensis var. nevadensis around Hidden Valley. The importance of this species is reflected in the numerous roasting pits on the valley floor (see Features, site 26CK1481 and 1482, this report).

Aschmann (1959) and others have suggested that utilization of succulent plant tissues played a significant role as a resource for aboriginal people who may have endured chronic water shortages. In Hidden Valley, potable water is limited to ephemeral tinajas, as no natural springs occur in the vicinity. Aschmann documents that some water (although bitter) can be obtained by chewing agave leaves and that partial roasting more readily yields liquid.

Agave was used by natives throughout its extra-regional distribution (Gentry 1972 and 1978). However, not all species were desired for food. Aschmann (1959) regarded agave as the most important vegetable food of the central Baja natives and describes the roasting techniques in great

detail (see also Gentry 1978:3-7). Since considerable effort was needed to render agaves edible, it was relied upon heavily during drought and winter, although it can be exploited year-round. During (spring) months of food scarcity, 45% of the Seri Indian diet was based on Agave alone (Aschmann 1959). During the remainder of the year, the Seri food intake was 57% vegetative, 28% of this represented by Agave. Steward (1938), however, concluded that vegetable food in the Shoshone diet far exceeded that of Baja's Seri Indians.

Utilization of agaves can eventually result in its complete destruction, as the plant rarely establishes itself by seed (Jordan and Nobel 1979; Nobel 1977 and Gentry 1972). Many species are found as localized colonies, the suckering offshoots representing an ancient progenitor. Since transport was heavy and cumbersome, local aboriginal harvesting procedures could easily eradicate Agave populations. In Baja, hills near permanent water were scoured clean of agaves, often resulting in local extinction of many of these plant populations (Gentry 1978).

Agave utahensis var. nevadensis was described by Cronquist et al (1977), Greenman and Roush (1929), Breitung (1960), Hester (1943), Gentry (1972) and others. Cronquist et al (1977) describes this local agave as an acaulescent, monocarpic perennial with succulent rosettes of long-lived leaves. The rosettes vary from solitary to occasional suckering at the base and flower only once after 8-20 years growth. Hester (1943) cited Agave utahensis var.nevadensis as growing "...by the multiplied thousands over limestone areas..." suggesting variability in the frequency of the suckering phenomenon. Intrinsic to this description is the fact that the agave is monocarpic, each rosette producing only one flower, with the entire plant dying at the end of reproduction (fruiting). If agaves are growing in a clonal aggregate, the remaining rosettes which have not fruited will continue through their normal life cycles. Often an agave clump will have several healthy living clones adjacent to a dried, dead one, the latter remaining upright for several years.

Populations of Agave on the hills surrounding Hidden Valley seem depauperate with respect to the size and frequency of aboriginal roasting pits found. The present plant populations may either: 1) reflect heavy past exploitation from which the agaves have not yet recovered; or, 2) agave populations were small originally and the Indians were conservative in their harvesting techniques maintaining a permanent, although not plentiful, source of food over time.

The distribution of sites with roasting pit loci in Hidden Valley reflect a heavy reliance on Agave. Ethnohistoric accounts in conjunction with archaeological data strongly indicate that roasting pits were constructed for the purpose of plant food preparation. Because of the appearance of tortoise and other faunal bone remains in these loci it is postulated (Brooks personal communication 1982) that once a roasting pit was constructed it was used for other food in addition to agave preparation. From the amounts of tortoise bone found in the roasting pits, it seems reasonable to assume that local aboriginal collecting pressures were controlled by conservation procedures or the agaves would have failed as a temporary food staple. These other food resources, such as tortoise, could have been substituted as supplements to the limited Agave supply in Hidden Valley.

F. Fauna

Within the Creosote Bush Community, reptile populations are abundant. Diurnal lizards are commonly seen; however, snakes are infrequent and less conspicuous, as they are usually nocturnal. The more common and abundant lizards are Uta stansburiana, Cnemidophorus tigris, Callisaurus draconoides, Phyrnosoma platyrhinos, Dipsosaurus dorsalis and Sceloperus magister. Common snakes include Masticophis flagellum, Pituophis catenifer, Crotalus cerastes and C. mitchelii. Two reptiles, Heloderma suspectum (gila monster) and Gopherus agassizi (desert tortoise) are observed frequently during spring months.

According to Bradley and Deacon (1965), thirty-three species of birds typify the Creosote Bush Community. More commonly seen species include horned lark, raven, gambel's quail, cactus wren, rock wren, white-crowned sparrow, black-throated sparrow and red-tailed hawk.

Rodent populations are relatively high and include Citellus leucurus, Dipodomys merriami, D. deserti, Perognathus formosus, and Peromyscus eremicus. Lepus californicus (jackrabbit) and Sylvilagus audubonii (cottontail) are abundant and widespread in occurrence. Common carnivores are Canis latrans and Vulpes macrotis.

The dense, uniform cover of the blackbrush scrub supports a fairly large population of rodents such as Citellus leucurus, Perognathus longimembris, Dipodomys merriami, Onychomys torridus, Peromyscus maniculatus and Neotoma lepida. Utilizing the higher elevations for protection, the herbivore Ovis canadensis (desert bighorn) is found occasionally during winter months. According to

McQuivey (1976) the current Muddy Mountain sheep population numbers 125 animals. Limited evidence suggests that seasonal movement occurs between the Dry Lake Range and Muddy Peak. From road kills and other evidence, there appears to be a summer migration from Muddy Peak to the Black Mountains along the Overton Arm of Lake Mead. Feral burros and horses, which frequent Bitter Spring, can occasionally be found in the vicinity of Hidden Valley.

The higher elevation and formation of nocturnal cold air lakes appears to have reduced the frequency of reptiles in the Blackbrush Scrub Community. Common lizards are Uta stansburiana, Cnemidophorus tigris, Sceloporus magister and Crotophytus collaris; whereas Crotalis mitchelli represents the snake population.

Desert tortoise (Gopherus agassizi) could occur locally in Hidden Valley since their range extends to the 1400 meter (4600 feet amsl) contour "... where there is adequate substrate for burrows" and since "...food habits of the desert tortoise vary considerably between populations which occupy desert areas with different vegetative compositions" (Berge n.d.). Individual tortoise can attain a life-span of at least 50 years and their growth has been correlated with rainfall variation, particularly as a result of browse availability through fall and winter precipitation. Their epigean season begins in March-April while winter hibernation ensues between September-October. Tortoise must maintain a body temperature above freezing and below 39.5 Celsius, the lower level of the lethal range. Body temperatures can be regulated through basking and cover sites, the latter including epigean shade and underground burrows.

In respect to their vulnerability to man, particularly through prehistoric exploitation (Connolly and Eckert 1969), tortoise could have been acquired easily throughout the year. Individually, tortoise could have been taken during their epigean period of activity and as many as five individuals could have been retrieved by excavation of their dens. Similarly, tortoise eggs could have been easily exploited. Both kit fox and coyote are reported predators (Berge n.d.). It is possible that exploitation patterns in the past could have significantly reduced a local population of tortoise, at least in terms of the adult population, as a result of higher detectability during periods of above ground activity (Berge n.d.: 204-206).

V. CULTURAL RESEARCH

The objectives of cultural research for Hidden Valley are related to the chronological record; to the existent data on the structure and material associations with specialized features referred to as "roasting pits"; and, to comparisons of artifactual assemblages recovered from previously excavated archaeological sites. While previous reports have dealt with chronological sequences and general occupational patterns, little research has been concerned with intrasite functional relationships of features and artifacts. As a result, this report is oriented particularly towards the interpretation of potential functional associations between these roasting pits and the artifactual assemblages found in context within a single site.

A. Chronological Sequence

The chronological sequence proposed by Shutler (1961) and Warren et al (1980) are used in the discussion of the chronology in Southern Nevada, and are believed appropriate for the Hidden Valley area. There are five phases applicable to Hidden Valley cultural materials:

Moapa Phase (300 BC - AD 500). The phase as used by Shutler (1961:66) is more appropriate to the Muddy-Virgin Rivers. In regional consideration, the phase has been incorporated by Warren (1980:46-47) into the latter part of his Gypsum Period (200 BC - AD 500) equating with Shulter's Basketmaker II culture. At this time, pithouses were built along bluffs of the Muddy-Virgin drainages. Groundstone tools, knives, choppers, scrapers, drill and points are reported for these sites (Shutler 1961:67).

Warren adds that Humboldt Series, Elko Series and Gypsum Cave points occur in sites during this time period. Further, the eastern Mojave Desert experienced an early development of sedentary patterns in contrast to the west's continuation of the hunting-gathering economy. Ritualism began, as noted in the presence of rock art, and bighorn sheep hunting was also initiated (Warren 1980).

Muddy River Phase (AD 500-700). This equates with Basketmaker III times and to the early portion of Warren's Saratoga Springs Period. Sites found along the Muddy-Virgin River area may consist of pithouses, though cultural remains can also be found at caves and rockshelters (Shutler 1961:67). Farming was initiated, but there continued to be a reliance on wild food. Rose Springs and Eastgate series

points and gray ware pottery occur. Also mining and trade items were added to these puebloan traits (Warren 1980).

Lost City Phase (AD 700-1100). The phase corresponds to the Pueblo I and II periods (Shutler 1961:16) and to most of Warren's Saratoga Springs Period. Architecture includes small one or two roomed structures ranging up to multi-roomed complexes. Farming was intensively developed, though hunting and gathering continued. Trade networks established by Anasazi peoples involved areas from west to east and south including both Kayenta and Patayan groups.

Mesa House Phase (AD 1100-1150). The closing date of puebloan culture roughly corresponds to the later part of Pueblo II, perhaps early Pueblo III. During this phase, several of the larger pueblo complexes were occupied. The cultural assemblage remained similar to the earlier periods.

Southern Paiute (ca after 800 AD). Beginning during the Lost City Phase and continuing after the Mesa House Phase, there were influences derived from the south and north involving both lowland Patayan and later Paiute groups. Colorado Buff, Tizon Brown and Paiute Brown wares enter into the area along with small triangular shaped and side notched points. These materials may be found intermixed within anasazi pueblo sites, campsites, caves and rockshelters. The similarity in traits between later Paiute and Anasazi is notable in many stone tool and woven items along with agricultural pursuits. However, hunting and gathering subsistence activities were more heavily relied upon by the Paiute than by the Anasazi (Shutler 1961:69).

B. Ethnography

The Southern Paiute occupied much of southern Nevada during ethnohistoric times, although the Mohave, located further south, maintained cultural influences and contacts in the region. The Southern Paiute were primarily seasonal nomadic hunters and gatherers moving between higher mountainous areas and lower elevations. Bands of 25 or more individuals formed autonomous political units within the larger territorial region. Each band unit composed a subsistence group within its own territory, which overlapped the areas of other bands and provided a year-round basis for environmental exploitation.

The individual family was often the independent economic unit. Subsistence was primarily plant foods and as food shortages occurred, families might be found harvesting alone or in company with one or two other families. Each family often would be located near a specific water hole or spring, seasonally shifting to other food resource areas.

With the Mohave, trade was important and the Southern Paiute near Las Vegas were subject to raids by them (Steward 1938:185). Similar to the Paiute, they depended upon wild foods and agriculture for subsistence. In their endeavors, the success of wild and domestic crops were related to water availability, which depended mainly upon factors of weather.

The use of Agave was widespread ethnographically and has been recorded throughout the Southwest, parts of Texas, Oklahoma, the southern Great Basin, northwestern Mexico and northern Baja California. The full prehistoric use distribution of Agave has not yet been determined.

Colville (1982:353-356) mentions the eating of seed pods from Yucca brevifolia and the roasting of Agave utahensis by (southern) Paiute in the southern portion of the Charleston (Spring) Mountains. To roast the agave..."A pit was dug into the soil, which varies in size from 1/2 meter to over a meter in diameter. This is then lined with limestone rocks and a fire is prepared on the limestone hearth base and the rock is then thoroughly heated. Once the rocks have been heated to the proper heat, the material to be roasted, agave, mescal, other plant food or even tortoise, were placed on top of the heated rocks. The whole was then covered and the food left to be roasted for a day or two. After being utilized, the limestone loses its thermal properties of heat retention so that new limestone has to be brought in and the old limestone is thrown outside the pit. This process forms the circular conical outside walls of roasting pits, as seen"...(Brooks et al 1975:305) in the Hidden Valley site areas.

Shutler's (1962) report on the Red Rock Canyon area provides ethnographic references from the Baja area (Henderson 1951) and from the Yavapai area in Arizona (Gifford 1932, 1936). With reference to Baja California, mention was made of the Pai-Pai using a sharpened stick to gouge the agave bud out from a rosette of thorn-rimmed leaves. A two and one-half feet deep and three feet wide pit was excavated, lined with rocks, and a wood fire built to heat the rocks. One or more buds were placed on the bed of coals, more rocks were piled atop, and the roasting pit covered with several inches of earth. Twelve hours later the charred buds were removed and eaten (Henderson 1951:8 in Shutler 1962:22).

The Southeastern Yavapai utilized a digging stick to excavate an oval roasting pit three feet deep and six or more feet in diameter. Within this, agave buds were piled on top of heated stones, covered with bush or grass and earth, and then cooked for two days. After opening, the agave was placed on a metate and beaten with a pounder

"shaped somewhat like a mescal knife, but with a blunt edge in order to break down the fibers" (Gifford 1932 in Shutler 1962:23). This was dried, and could be chewed after it was soaked in a basket of water. The fibers were spat out later as "quids" when all nutriment and flavor was extracted. It is reported that the Northeastern and Western Yavapai also roasted these foods much the same way and utilized pits 10 to 12 feet in diameter (Gifford 1936 in Shutler 1962:23).

Spier in reporting on the Havasupai states that "Mescal (agave) is gathered and roasted in pits by most, if not all, of the non-Pueblo peoples and perhaps by the Pueblo and Mexican tribes as well", then goes on to mention the Paiute and other Arizonan and Mexican groups (1928:119). Tools utilized in procuring the agave buds included a chisel-edged stick, "trimmed with a peculiar hatchet" (agave knife?) by the Havasupai and several other groups (1928:119).

The Havasupai gathered the ripening agave when the flower stalk had grown up to 30 to 60 centimeters. The entire plant was severed by pounding a chisel-shaped buckthorn stick, one meter long, 3 centimeters in diameter against the plants' base (Spier 1928:105). The plant was trimmed of its greener leaves by a special hatchet consisting of a broad blade set in a slot along a short wooden handle. Between 30 or 40 plants were carried home. A one and one-half meter diameter pit was excavated in sandy soil into which dry brush was piled one meter high and then overlain by (fist) sized stones to a depth of 10 centimeters. After the stones became red hot, men pounded the pile to reduce its height. On top of this the agave was placed and layered with green grass, then dirt. Two days later the pit was opened (Spier 1928:106). The leaves of the roasted mescal were dried much the same way as reported for the Yavapai, and were eaten at any time after roasting.

Mescal paint was reportedly procured from the dried juice coating the stones. Rocks were boiled, and a liquid was retrieved into which red paint was stirred and reduced to a doughy consistency (Spier 1928:106).

C. Excavations

A review of previous excavations in southern Nevada was conducted to determine those publications that would be relevant to the Hidden Valley sites' interpretation. The most relevant information is provided by Brooks and Larson (1975) and Warren et al (1978) based upon the similarity in tool assemblages and materials, the occurrence of roasting pit features and/or proximity to the Hidden Valley area.

1. California Wash

In the early 1970's an archaeological survey and test excavation was performed along a transmission line corridor, a portion of which passed west and south of Hidden Valley (Brooks and Larson 1975). Four of the excavated archaeological sites, located in the low profiled Dry Lake Range, either contained or were located near roasting pit features. They were found near the 2900 foot level (amsl) at points close to the California Wash drainage. This region is typified by limestone bedrock and moderate, alluvial slopes, by a creosote bush community, and by the absense of local, permanent water sources.

The four sites, 26CK1081, 1082, 1112 and 1113 were seasonally occupied, and were found to be composed of one or more components ranging from rockshelters or overhangs to circular rock-outlined features, each with variable material contents and depths from 20 centimeters to one meter. These dated from a period after 845 BC (Component A, 26CK1112) to AD 1700 (Component A, 26CK1081), but typically dated from AD 825 to 1440 (four of the six C14 dates processed). Diagnostic artifacts suggested a time span beginning by at least pre-Basketmaker II and continuing into the Shoshonean Period, but mostly occupied by puebloan peoples.

Three, perhaps four roasting pit features were exposed at two of the sites, 26CK1081 and 26CK1112. In Component A of 26CK1081 there was evidence just outside the shelter area of roasting episodes intermixed with habitation materials,but with no well-defined roasting pit feature. Component B of this site was downslope from the shelter, about 15 meters, and exhibited a well-defined circular, limestone rock-outlined feature. Site 26CK1112 consisted of a series of rock shelters with four components: three shelters and an isolated roasting pit, Component D similar to Component B of 26CK1081: These two features were generally lacking in associated culturlal materials. Excavation of the two roasting pit components exposed circular rock-lined pits approximately one meter in diameter and 50 centimeters in depth, and at the center of an outer circular rim of surface rocks. In function, the pits were interpreted to have served in roasting agave, and since bone was commonly found at these locations, possibly in the roasting of desert tortoise and perhaps other food items. In respect to current distribution patterns, tortoise could have been acquired locally, while agave could have been acquired by import, perhaps from the north out of the Muddy or Virgin Mountains.

The average cultural material yield from sites 26CK1081 and 26CK1112, tabled but not summarized by Brooks and Larson (1975), appear to suggest several correlations. These correlations imply that roasting pits, or features defined as representing these functions, when in isolation from habitation areas, do not contain a definitive tool kit. Where a preponderance of artifacts occur as well as other cultural materials, habitation is indicated along with these features.

2. Valley of Fire

At the Valley of Fire, north of Hidden Valley, test excavations were performed at three rockshelter sites during 1976 (Warren et al 1978). Report conclusions focused largely on the general chronology of prehistoric development in the are.

At least two roasting pit features were described, both found at Atlatl Rock (26CK1345). They measured from 1.4 to 2.5 meters in diameter and 0.35 to 0.5 meters deep and consisted of limestone and charcoal. Although the two were found in "Stratum 3", no contextual reference as to cultural association was provided in the report.

Four cultural units were defined at Atlatl Rock, beginning with Unit 1, the earliest and ending with Unit 4, the latest. These were all or partly correlated to occupation levels at the remaining two sites, the Turtle Bone Site (26CK1384) and South Shelter (26CK1383). Unit 1 was characterized by a lack of pottery but with the occurrence of Elko, Pinto-like, large triangular and leaf-shaped points. The Elko series comprised most of the points retrieved. Unit 2 lacked pottery except for possibly intrusive sherds at the upper portion of the level. Points ranged in percent frequency of occurrence from 14 to 28% and included Elko, Humboldt, leaf shaped and Rose Springs Series points. Unit 3 contained gray ware pottery (puebloan), Rose Springs and Elko points, and some leaf shaped and Humboldt series points. Unit 4 is characterized by both gray ware and Paiute brown ware pottery. A large portion of the point collection in this level is represented by Desert Side Notched points, though triangular shaped and Elko Series points were present. Only a few Rose Springs Series, leaf shaped and large triangular points were found.

The Atlatl rockshelter exhibited a tendency for the number of simple flake scrapers to increase relative to shaped scrapers through time; for the number of knives to decrease through time, particularly in Unit 4; and, for a variable decrease and increase in manos from lower to upper

units (Warren 1978:80). It was not demonstrated whether the data were statistically significant. Conclusions suggested that the cultural units represented a single tradition with "little change in the basic tool assemblage throughout the occupation" (Warren 1978:89). At Atlatl Rock, the earliest occupation (Unit 1) is equated with the Moapa Phase, continuing on in time into the Lost City Phase of the Anasazi and subsequent Paiute occupation.

D. Summary

To date, archaeological excavations near Hidden Valley have yielded a cultural time depth extending from at least pre-Basketmaker II into later, Anasazi and Southern Paiute periods. In many instances, site content is dominated by puebloan occupational materials, intermixed in higher levels with Paiute associated artifacts, which may retain puebloan-like traits within their artifact assemblages.

In an area encompassed by prior excavations and Hidden Valley, subsistence activities took place from seasonal encampments, which are not situated near the present locales of two significantly abundant resources: water and Agave. In respect to the functional explanation of roasting pits, there remains the possibility that both plant and animal foods were processed including the preparation of Agave and desert tortoise.

Ethnographically, Agave is the major plant food mentioned in relation to roasting pits. In those instances cited, a 5 to 20 foot diameter and 1 to 3 foot deep rock-lined pit was utilized in the roasting process. At times, tool kits are described which consisted of wood digging implements hafted stone knives or hatchets, metates and blunt edged, knife-shaped tools used in poinding the roasted Agave. These tool kits, particularly the stone tool items, did not occur with the two excavated roasting pit components, site 26CK1081, Component B and 26CK1112, Component D. At these locations only tortoise bone was retrieved. It may be possible in the future to identify the co-occurrence of such a functional assemblage with similar rock-lined basins at occupational middens. In this respect, excavation is needed to investigate areas where Agave quids are within or near to roasting pit site types. (Also, see discussion in Vegetation on Agave.)

VI. FIELD METHODS AND TECHNIQUES

The fieldwork was performed during October, 1981. Cartographic mapping of the two sites was performed during the first week of October, excavation occurred during the middle of the month, and final work was completed at the end of October. A total of 43 1/2 man-days were utilized for fieldwork.

Two crew members and four man-days were used in mapping the sites. The cartographer mapped the site utilizing an alidade, plane table and stadia rod. Site datum references were established at each site, given as Alpha 1 for site 26CK1482 and Beta 1 for site 26CK1481 (Maps 2 and 3). From these points, contour and surface features were plotted and stakes were placed within the site boundaries. Measurements were based upon the metric system except contour intervals, which were based on the English system.

Thirty-six and one-half man-days were needed to complete excavation work. Six crew personnel worked between October 7-9 and 13-16 at sites 26CK1481 and 1482 (see Figures 3 and 4). Stan Rolf, the COAR, oversaw the location, size and test pit orientation at site 1481 and, at site 1482, approved the location of the test pit areas. Fieldwork ensued by setting up gridded excavation squares within deeper, less disturbed portions of each site. Gridded units to be excavated were measured from one of the stakes placed during site mapping. From this point, the grid was outlined by string, stretched from additional corner stakes, forming either one square meter units or one by one-half meter extensions. A total of nine, one square meter units and two, one by one-half meter extensions were established at site 26CK1481 and a total of six, one square meter units were placed at site 26CK1482.

Total excavated fill amounted to 9.9 cubic meters as the sites were shallower than anticipated and contained numerous architectural features with a limited amount of midden. This resulted in a shift of field priorities from one of quantitative retrieval to one of investigating surface features. This also affected the original T-shaped trench, formerly proposed for excavation. Initially, both sites were believed to contain a one and one-half to two meter depth of deposit, and because of prior disturbance, excavation was aimed at processing large amounts of site debris. However, through the concentration of subsurface architectural features, particularly at the one-half meter deep site, 26CK1481, the orientation of excavation was flexible enough to allow concentration on exposing features within a square-shaped grid.

FIGURE 3:

The rockshelter, site 26CK1481, is in the immediate foreground, facing northeast towards the viewer. The majority of artifactual material is encompassed in the lower foreground, while the midden is found on the rise, central to the shelter. Three adjoining excavation pits were placed on the rise while a fourth, isolated pit was placed at a surface feature, at left near a primary drainage. Petroglyphs and pictographs, not visible, occur at the back of the shelter. (Figures 21-23).

FIGURE 4:

The central portion of the midden, site 26CK1482, was staked into excavation pits. These were placed along the rise which parallels the shelter, in the immediate foreground. Like 26CK1481, the site has been severely disturbed by unauthorized excavations at the back of the shelter.

Each excavation unit was designated as a pit containing one or more, one square meter quadrants within that unit. At site 26CK1481 these included: Pit 1, with quadrants northeast, northwest, southeast and southwest; Pit 2, with quadrants north and south; Pit 3, with quadrants north and south; and Pit 4, which contained only 1, one square meter quadrant. At site 26CK1482 the excavation units included Pit 1, with quadrants northeast, northwest, southeast and southwest and Pits 2 and 3 which each contained only 1, one square meter quadrant.

Horizontal and vertical measurements were controlled from an established, local datum stake placed near these units. The latter stake enabled an accurate plotting of all in situ findings from a fixed permanent reference point. At site 26CK1481, two local datum stakes were placed, one incorporating Pits 1, 2 and 3, and the other covering Pit 4. At site 26CK1482, each of Pits 1, 2 and 3 possessed their own local datum reference.

Excavation levels consisted of 10 centimeter depths measured from the highest surface point at datum. Since surface slope from datum was taken into account, the first 0-20 centimeter levels may not be wholly represented in all of the units. This is particularly noteworthy for Pits 1, 2 and 3, 26CK1481 where the steepness of slope surface at datum caused irregularities in the first 20 centimeters. In these pits some of the quadrants for the first 2 levels are incomplete because of this surface slope.

Excavation techniques involved the use of trowels, dust pans and brushes. Because of the large number of subsurface features, shoveling was limited to the upper and lower portions of each unit. Features, in situ artifacts, and excavation levels were measured from the local datum by the use of 5 meter tapes and line levels. Upon the completion of each level, the floor of the pit or quadrant and all features were brushed clean before beginning the next lower level. During excavation, soil samples were taken from features and carbon samples were bagged for later analysis.

Materials excavated from each quadrant were placed in 5 gallon buckets, hand carried to a 1/8" mesh shaker screen, and examined for artifactual content. During this process, bone fragments, waste flakes, carbon specks, and unusual or diagnostic artifacts were sorted and bagged. Because of the large number of waste flakes only a portion were collected, largely excluding smaller percussion and pressure flake spalls.

All materials were separately processed according to pit, quadrant level and/or feature association. Bags were marked accordingly, identifying the site, pit, quadrant,

level, date and crew members. Special notes were added if the material content originated from a feature. At times, artifacts were also collected from the surface of each site as well as from collapsed portions of the excavation side walls. These artifacts were so referenced.

Notes were maintained during fieldwork, detailing the content and condition of each excavation unit in respect to daily progress, stratigraphic changes and feature association. Sketch maps were made of all the features, identifying their components and vertical and horizontal measurements. Sketches were also made of all the rock art elements found at site 26CK1481 (Figures 21-23) except the isolated pit and groove petroglyphs. The possible pictographs on the shelter face of site 26CK1482 were nearly obliterated by natural processes and were not drawn. (See Section, Rock Art).

Auger test holes were placed at points throughout site 26CK1481 to determine the horizontal and vertical extent of the midden deposit. Nine of these holes were drilled surrounding the main excavation area. At site 26CK1482 the soil was too rocky to allow for a successful auger hole.

Photographs were taken during all phases of excavation. These included overviews of Hidden Valley, the two rockshelter sites, and more detailed photographs of disturbed areas, features and stratigraphy, excavation progress, and site layout.

Finally, a total of two man-days were expended for completing fieldwork. At this time, stratigraphic profiles were made of the excavation units. Since then, the excavated pits have been refilled utilizing the back dirt from the screening activities.

VII. SITE CONTENT AND STRATIGRAPHY

The two rockshelters occur within a bowl-shaped valley whose natural exit is an intermittent drainage, emptying at the north through a narrow canyon (Figure 1). Steep mountainous terrain and high hills block the immediated entrance into the valley, except for a track road to the southeast. This road provides access for off road vehicle activities and has resulted in repeated vandalism of the archaeological sites.

The rockshelter sites, 26CK1481 and 1482 (Figures 2-4), are located respectively in the central and northern portions of the valley. In general, the relief is composed of gradual, northeastern sloping alluvial deposits. Jutting

above the valley floor are remnant, red sandstone hills, scoured into dome-shaped forms and marked by numerous alcoves and vertical cliff walls. Where the sandy floor surface abuts these marginal cliff sides, several aboriginal sites are found. The recent archaeological excavations were focused at two of these.

A. 26CK1481/CR-NV-05-634 (Figure 3)

The site is located at the northern end of the valley, immediately adjacent to and west of the region's primary drainage. Along this section, soils are shallow, chiefly composed of coarse sands and rounded boulders. The vegetation cover in the area is fairly uniform, consisting principally of the Blackbush Community. Nearby, Chilopsis linearis (desert willow) and Acacia greggii occur as linear stands of tall shrubs in the drainage, and Larrea tridentata may occur both in the drainage, in isolated spots above it, and immediately fronting the site.

The rockshelter faces to the northeast and is typified by a steep overhang which curves inward to form a concave back wall for the shelter on which there are a series of petroglyphs and pictographs (Map 2). From this back wall, a shallow midden extedns outward for a radius of about 30 meters. Along the shelter's front is buildup of finely sorted sands resulting from wind deposition. In addition there are a number of piles of sand, which are backdirt remnants of vandalism on the site area. Recent surface disturbances include a 30-40 cm. deep pit and a perimeter of sorted stones at the back of the shelter; a recent rock-lined hearth north of this vandalized area; a rock pile west of the cave; and, a south-to-north track road traversing the site's eastern portion.

Subsurface testing at 26CK1481 included a series of adjoining excavation units at the front of the cave and an isolated unit at a roasting pit feature, 50 meters east of the midden, located at the edge of the valley's primary drainage. Excavation units were selected to sample less disturbed areas of the shelter on the sandy, front mound. An isolated unit was added in order to determine roasting pit's cultural relationship to the site. The stratigraphic sequence from surface to the base of excavation is given below. Depth measurements refer to an overall surface to subsurface depth, not to a datum level.

FIGURE 5:

Site 26CK1481 showing Pit 1 and extensions at center and left, with Pit 2 at far right and a portion of Pit 3 at left, bottom. The trowel at center points north and lies to the right of Feature 1, just below Feature 2 and above Feature 3. These features are respectively described as Type A and B hearths and associated rock scatter identifying two roasting pits and a generalized rocky stratum. Although historic artifacts were located in areas of these quadrants, these appear to be due to rodent intrusions and sidewall collapse.

FIGURE 6:

Pit 4, site 26CK1482, viewed to the north. An isolated excavation quadrant was placed on top of a rocky cluster of surface rocks, eventually exposing a Type C hearth. Fist-sized, fire-fractured cobbles occurred throughout the upper levels of the feature. With removal of the cobbles, an irregular, concave base of large boulders was revealed. No artifacts were retrieved from this roasting pit.

1. Selected Profiles: Pit 1 (Map 10).

a. Topsoil B: The composition of the surface soil was largely a midden mixture of light-gray fine sands, fire fragmented rock and finer aeolian-deposited sands. This zone covered the first 5 to 10 centimeters of the site, immediately in front of the cave, and may have been due to former screening of soils taken from the back of the shelter. In one portion, fine horizontal lensing was evident.

b. Midden: From a depth of 10 centimeters downward to 45 centimeters, an undisturbed, compacted mixture of dark, coarse sands and fire-fragmented rock composed the midden layer. The dark sands can be attributed to charcoal mixing associated with the several rock-lined features uncovered in Pits 1 and 2. Specks of charcoal were mixed throughout the layer as well as a rather homogenous, dense occurrence of fire-fractured rock. The rock appeared to have been derived from local limestone and sandstone materials.

Four features occurred in this stratum (Maps 4 and 5 and Figure 5), Pits 1-3. Feature 1 is identified as a Type A hearth (refer to Section XIII, Hearths). It extended from 10 to 50 centimeters below the surface, where culturally sterile soils were found. Soils within the feature were composed of the associated midden mixture. Definable lensing was not noted within nor adjacent to the rock alignment. The Type A hearth was equally divided between the northwest and southwest quadrants with minor portions extending into the northwest/southwest extensions and into the northeast and southeast quadrants.

Feature 2 is a Type B hearth located below the rim of Feature 1, beginning at 20 centimeters and ending at 30 centimeters from the surface. Soils within the feature were similar to Feature 1 except that a larger amount of charcoal fragments was present, predominatly along the inner surface of the feature. Culturally sterile soils were encountered at the feature's base beginning at 30 centimeters below surface. The hearth was divided by quadrants northwest and northeast, with a small portion extending into the northwest/northeast extension.

Feature 3 consists of the uppermost contact with fire cracked rock in Pits 1 and 2. It was exposed within Pit 1, southeast quadrant and Pit 2, south quadrant, but occurred in all other quadrants of Pit 2 as well. The upper rock level began at 15 centimeters depth in the southeast quadrants, Pit 1, adjacent to Feature 1, and was near the surface in the south quadrant, Pit 2.

Feature 4 was a Type B hearth, also located entirely within midden soils. Unusual amounts of charcoal were not noted. The feature occurred between 20-30 centimeters below surface in the north quadrant of Pit 3. The feature lay approximately one meter southwest from Feature 1, beginning near the same depth in respect to the excavation datum.

c. Sterile: Beginning near 30-40 centimeters in depth, midden soils were intermixed with patches of light red, coarse sands and gravels. These culturally sterile soils dominated the stratigraphy between 40-50 centimeters depth in Pits 1 and 2, and were found to overlay sandstone bedrock in Pit 3. The south unit of Pit 3 exhibited a 30-50 centimeter depth and its bedrock base dipped northward away from the rockshelter to a depth of 50 centimeters in the north quadrant.

2. Profile: Pit 4 (Maps 6 and 13, and Figure 6).

The isolated excavation quadrant was identified as a surface concentration of rock later revealing a Type C hearth. The upper 5-10 centimeters contained "Topsoil B" sands and midden mixture. Below this, downward to a 40 centimeter depth, black sands and charcoal stained boulders were found. These rested on top of a sterile, light red sandstone base.

3. Augering: (Map 2).

A series of nine auger holes were placed in front of the rockshelter to determine the subsurface extent of the midden. These largely confirmed the shallowness of the deposit. Midden depths occurred at levels between 20 to 50 centimeters west and north of the excavated pits, but were found to be deeper on the east side from 35-70 centimeters below surface.

4. Disturbance: (Map 2).

Though the top 10 centimeters of the excavated quadrants may be disturbed due to vandalism, little disturbance was evidenced below this level, as reflected by the intact state of the aboriginal features, soil compaction, and artifact yield. While historic materials were noted within all quadrants except the north end of Pit 2 and at Pit 4, these may be attributed to rodent activity or sidewall collapse, (see Table 30).

FIGURE 7:

This is an overview of a Type B hearth at site 26CK1482. Comparable to three of the four features excavated at site 26CK1481, it is lined by a single row of flat cobbles. Smaller, fire-fractured rocks overlaid the first 20-40 centimeters prior to outlining its uppermost circular rim. An almost pure 5-10 centimeter thick charcoal lens mantled the inner base of the feature. The column, left standing on edge of the roasting pit, identifies an historic hearth, Feature 1, located at the 20-30 centimeter level. The latter feature lies adjacent to a pothole, located on the sidewall, top right, above Feature 2.

FIGURE 8:

Site 26CK1482, Pit 3, showing the north wall of a Type C hearth and its thick stratum of charcoal. Like the example in Pit 4, 26CK1481, no artifacts were retrieved from the unit.


SMOK 1498
OCT-1981
TEST PIT-1
SE-NE 1/4
FEATURE 2
100 CM

B. 26CK1482/CR-NV-05-635 (Figure 4).

The site is located in the central part of the valley on top of elevated terrain. Intermittent drainages occur south and north of the site, respectively draining west and north. Soils appear to be deep, extending across a nearly level alluvial plain and are composed of coarse sands and rounded boulders. Vegetation cover is uniform and composed of the Blackbrush Community. Unlike 26Ck1481, tall shrubs do not occur near the site.

The rockshelter faces east from a steep-faced, sandstone backdrop (Map 3). The shelter has only a slight overhang, and does not afford as much overhead protection from weather as does 26CK1481. From the back of the shelter, the midden extends outward in all directions, for approximately 30 meters. Comparably to site 26CK1481, a buildup of aeolian sands extends across the front of the shelter, though this may be due to natural deposition rather than screening activities. Notable disturbances are potholes located at the back of the shelter and a recent, rock-lined hearth ring. Rodent burrows are more common than at site 26CK1481, and are found along the sandy ridge in front the of the shelter. A south to north track road traverses the eastern boundary of the site. Both 26CK1481 and 1482 do not appear to have been significantly disturbed by traffic along these roads.

Subsurface excavation at 26CK1482 involved the location of five units within the shelter and an isolated unit placed at one of the surface features away from the shelter. Four quadrants, established within the sandy zone were termed "Pit 1". A fifth unit, Pit 2 contained a single quadrant and was located just north of these pits within rocky soils, thought to have been sorted out from prior relic collecting activities. The last unit, Pit 3, was located about 50 meters south of the shelter in order to determine the cultural significance of a surface feature, Feature 3. Another surface rock alignment (Map 9), Feature 4, was not test excavated. It lies 50 meters east and north of both test areas.

1. Profile: Pit 1 (Map 11).

a. Topsoil B: The soil composition was a midden mixture of finer aeolian deposited sands and less fire fragmented rock than at site 26CK1481. This zone mantled the first 5 to 10 centimeters of the pit. Some fine horizontal lensing was evident.

b. Fine Sand Lensing: A large boulder projects out of the north wall of Pit 1, northeast, from the 25 centimeter level upwards above the surface of "Topsoil B". Behind this boulder and to one side, fine aeolian sands have been deposited in horizontal lenses, extending from the northeast quadrant into the southeast quadrant, below topsoil. Central to the deposit and intruding into the first 5 centimeters, is a rock cluster identified as Feature 1. Charcoal was not evident in the sand layer. For reasons discussed later in this section, it is possible that the rock cluster is historic, reburied by natural processes.

c. Midden: For the most part, the midden extended from the first 5 to 15 centimeters below surface, downward for approximately one meter. These soils were less compacted and rocky than at site 26CK1481. Specks of charcoal and fire fractured rock were frequent in this rather homogenous stratum. Again, the rock appeared to have been locally taken from nearby limestone and sandstone materials.

A single feature was located in this layer, Feature 2, and was associated with an accumulation of darker soils and fire-fractured rock (Map 7 and Figure 7). The Type B hearth extended from 70 to 100 centimeters below surface within the southeast quadrant and somewhat extending into the northeast and southwest quadrants. Above and below the feature, as identified in the profile for these same quadrants, darker soils extended into two directions, one appearing at the same plane as the feature's rim, downward, and the other from the rim, upward. This suggests either a second nearby hearth or reuse of the excavated hearth. Also, on the base of the hearth, a 5-10 centimeter thick lens of almost pure charcoal was noted. The charcoal was undifferentiated, occurring as a homogenous layer rather than as fragmented chunks.

d. Intrusions: Several portions of the sidewall contained distinct interruptions within the midden, representing rodent and potholing activities. Rodent burrows, and perhaps at least one den, were recognized below the topsoil, extending downwards to at least 40 centimeters from surface in the northern areas of quadrants NE and NW. Also, at the southeast corner of Pit 1 southeast quadrant, a small pit had been formerly excavated down to below 50 centimeters from surface. Several burrows occurred in the fine sands of the pothole, particularly near Feature 1, where amounts of historic debris were discovered down to the

50 centimeter level. The area is thought to represent a recent, small cultural intrusion into the site.

e. Bedrock: From a depth of 100 centimeters to the 120 centimeter level, a zone of sterile/midden mixture and underlying sandstone bedrock was uncovered. The bedrock dips at a sharp angle from the west to the east and suggests that the midden may be deeper further away from the back of the cave.

2. Profile: Pit 3 (Maps 8 and 12, and Figure 8).

The isolated pit was placed central to a rocky surface concentration, Feature 3, and excavated to the 60 centimeter level. Soils consisted of Topsoil A coarse sands and fire-fractured rock, different from Topsoil B in its lack of wind deposited sands. An indistinguished stratum occupied the first 20 centimeters of the feature, directly overlying a dense bed of nearly pure charcoal. This lower layer, characterized by large charcoal fragments,is from 10 to 40 centimeters thick, interspersed by fire-fractured rock. The charcoal bed overlies the internal base of Type C hearth.

3. Augering:

Auger test holes could not successfully penetrate the first 20 or so centimeters of the site's surface. This was due to large amounts of subsurface rocks which limited drilling.

4. Disturbance:

Aside from a localized part of Pit 1, little prior disturbance was noted in the excavation quadrants. Historic artifacts were found to the 40-50 centimeter level in the northeast and southeast quadrants of Pit 1 apparently due to rodent and man-made intrusions. Other historic elements located were found at the 0-10 centimeter level, northwest unit of Pit 1 and the 20-30 centimeter level, Pit 2 (see Table 31).

VIII. LABORATORY METHODS AND TECHNIQUES

Laboratory processing included the washing and drying of artifactual material for later cataloguing. All other materials were not cleaned though these too were catalogued.

Collected soil samples were washed through 1/16" mesh screen and flotation methods were used to retrieve any potential seed remnants from each individual collection bag. Carbon samples were sorted and selected for Carbon 14 dating, and were sent to a radiocarbon laboratory for analysis.

Bone and waste flake materials were weighed according to site, quadrant, level and/or feature. The bone materials were fragmentary and eroded, but have been subsequently sorted and analyzed for possible taxonomic identification. Data obtained from examination of waste flakes are included in the report by weight for pit and general levels.

Pottery sherds were typed and frequencies of occurrence of types recorded and described. Historic artifacts were catalogued, analyzed for composition, type and location.

Artifact cataloguing included the detailed description of all artifactual material, except lithic material composition. The lithics composition was identified in general categories as chert, obsidian, quartzite, limestone, sandstone, rhyolite and granite.

The stone tool analysis incorporated an attribute-assigned element study (see Stone Tool Section). Several important considerations were not made as part of this report, but are recommended for future research studies. These should include:

1. Edge-angle determinations and dimensional measurement of the artifact's margin of use;

2. Detailed descriptions of materials and their fracturing behavior; and,

3. Separation of waste flakes into types of percussion and pressure flaking activities, perhaps including remnant wear patterns relative to retouch flakes.

It should be noted that smoothing on the margins of many artifacts, particularly knives, was observed. This type of wear pattern may have more significance then formerly recognized, and should be microscopically analyzed, utilizing a matting agent in order to reduce material reflectance, to determine use scarring.

Field maps and drawings were transposed to final pen and ink copies including site contour maps plus views of features and stratigraphic profiles. All photographic and

catalogue records generated by the project have been typed into permanent records. These, along with the artifact collection, are temporarily stored by the University of Nevada, Las Vegas, Museum of Natural History until such time as their final curatorial disposition has been determined.

Distribution tables for artifacts as well as yield per cubic meter are included in Section XVI Data Compilation and XVII Intrasite Distributions.

IX. STONE TOOLS

The initial stone tool sorting followed the descriptive outline presented by Warren et al (1978). This sorting was performed on the assumption that their typological scheme could be imposed on the Hidden Valley collection. In many instances, their work was instrumental in the recognition of flaked stone tool attributes. During the initial sorting process it became immediately apparent that flaked stone tool type distinctions were not that comparable: Although the Hidden Valley collection is small in comparison to the Valley of Fire collection, the types representative of the two areas are different in terms of shape, size, and wear pattern descriptions. Additionally, the Hidden Valley collection contains a 16% collection of multi-use and re-used artifacts cross-cutting every imposed descriptive grouping.

As a result, it was recognized that a more precise and site definitive basis for analysis had to be incorporated into the sorting process and that assumptions derived from the functional typology had to play a greater role. To accomplish this, criteria were developed to sort the artifacts into inclusive Classes and Types. Essentially, the form of the artifact had to be considered secondarily to its working area attributes. This analysis required the development and standardization of terms unlike those presented by Warren et al (1978).

The analysis utilizes the terminology developed by Don E. Crabtree, "An Introduction to Flintworking" Parts 1 and II (1972) plus the attribute analysis reference system employed by the Nevada State Department of Transportation (March 1981). Together they may be referenced for the specific nomenclature used in the attribute analysis. An illustration identifying the several specialized terms accompanies the report (Figure 20).

The prerequisite for identifying functional uses of the artifacts involved a prior acquaintance with lithic usages through research and experimentation. Past references cited as instrumental in the analysis include Prehistoric Technology (1964) by S.A. Semenov and "Archaeological Report Amchitka Island, Alaska" (1970) by R.H. Desautels, A.J. McCurdy, J.D. Flynn and R.R. Ellis. Much of the artifactual material was analyzed utilizing a 4-power hand lense and a 7 x 40 power binocular microscope. Usually, the 4 to 14 power range was adequate to recognize wear patterns.

Multiple-use and re-use tools only appear to represent binary functions for any one artifact. Constant reference is made throughout the text where lithic artifact types appear to fall into one or two functional groups. Therefore, the range of attributes noted for all scrapers must differ in several respects from the range of attributes for knives, and when the two co-occur on the same artifact, must also be non-overlapping and separately distinguishable. These separately distinguished attributes were totalled as elements within the artifact collection, rather than as functional tool types, and include a large number of stone tool activities than otherwise would have been represented (Keyser and Davis 1981).

A. Scrapers (50 examples: 86 elements/Table 3 and Figures 9 and 10)

Scrapers possess beveled lateral margins at steep angles to their longer axes. Beveling is achieved by unifacial flaking, on larger scrapers limited to the lateral/posterior edge (working edge), and on thinner scrapers, along the entire lateral margin. Use scars occur along the working edge towards the anterior side of the scraper and may consist of minute conchoidal flake spalls and/or a series of small step fractures.

In most cases, tool form is limited to edge preparation rather than overall shaping. Factors of size, edge configuration and/or associated element suggested the distinctions listed below.

1. Class 1: Flake Scrapers (Figure 9:A-C). The class is represented by relatively thin, core-produced flakes. Type distinctions are based on plan view configurations of the beveled margins.

a. Type A: Convex Side Scrapers (2 examples: 2 elements). These have thin, lenticular to triangular cross sections, parabolic in plan view. The working face is

TABLE 3

SCRAPERS: SIZE, COMPOSITION
AND NUMBER OF EXAMPLES
26CK1481 AND 26CK1482

	No.	LENGTH Min.	LENGTH Max.	WIDTH Min.	WIDTH Max.	THICKNESS Min.	THICKNESS Max.	Material
A. SCRAPERS								
1. Flake Scrapers								
a. Convex Side Scrapers	2	2.6	3.1	1.6	2.7	.5	.7	2 Chert
b. End Scrapers	1		2.6		2.9		.9	1 Chert
c. Straight Side Scrapers	4	3.0	4.2	2.0	3.4	.5	2.4	4 Chert
2. Plane Scrapers								
a. Core-Scrapers	4	5.7	7.1	4.9	5.4	2.7	3.6	4 Chert
b. Large, Convex Side Scrapers	8	3.2	5.5	2.8	5.0	1.2	2.4	8 Chert
c. Small, Convex Side Scrapers	3	1.8	3.5	1.6	2.1	1.2	2.0	3 Chert
d. Ovate, Backed Chopper Scrapers	1		7.3		5.0		1.8	1 Chert
e. Concave Side Scrapers	3	4.0	6.3	2.8	3.2	1.9	2.8	3 Chert
3. Miscellaneous Scrapers								
a. Flake, Knife-Scrapers	2	3.9	3.9	2.4	3.6	.8	1.1	2 Chert
b. Knife-Platform Scrapers	14	2.5	5.5	1.8	4.8	.6	1.9	14 Chert
c. Knife-End Scrapers	1		6.3		4.8		1.8	1 Granitic
4. Scraper Fragments	7	1.1*	3.8*	1.5*	3.4*	.5*	1.1*	7 Chert

*Fractured along these dimensions.

located on the flatter, ventral side of the flake. Small pressure retouch scars are found on one or both lateral margins.

The two scrapers were formed on a narrow, expanding to broadly contracting end-struck flakes. Use scars occur as minute, conchoidal flake spalls along the lateral margin. One example, a narrow bilateral scraper, has been heavily utilized (Figure 9:A).

b. Type B: End Scraper (1 example: 1 element). This is lenticular in cross section, somewhat thicker than the previous examples. The artifact is square in plan view and plano-convex in cross section (Figure 9:B). It is formed on a small but broad end-struck flake. The ventral end of the flake forms the proximal working edge of the artifact. Pressure retouch scars occur along the lateral margin and use scars overlay these, occurring as minute conchoidal flake spalls and light step fractures.

c. Type C: Straight Side Scrapers (4 examples: 4 elements). The four specimens were created on thin to thick primary end-and side-struck flakes. They are triangular, square and ovate in plan view. The lateral margin is steeply to moderately sloping. The working face may occur on either the posterior or the anterior side of the flake. The bulb of percussion is present on three examples opposite from or adjacent to the working edge (Figure 9:C).

Only one lateral margin of each of these has been utilized as the scraping side. On three examples, the lateral margin has been pressure retouched, but the fourth example has not been, and may be typified as utilized. Use scars consist of minute, conchoidal flake spalls and step fractures along the lateral margins, rarely on the working face.

2. Class 2: Plane Scrapers (Figure 9:D-G and 10:A-C). The thick examples are formed from cores, large chunky flakes, and core fragments. Characteristics used in discussing types include size, associated element and lateral margin configurations. Also, they possess large, square to ovate posterior working faces. Anterior sides are high above the posterior face forming the thickness. The majority were intensively used resulting in heavy step fractures, at times blunting the working edge.

a. Type A: Core-Scrapers (4 examples: 8 elements). These consist of multi-directional core elements resulting from primary flakes taken off in more than one

direction. They are roughly ovate in plan view, and steeply plano-convex in cross section (Figure 9:D and F).

The working edge on each core-scraper could not be attributed to hammerstone and chopping activities. The working edge is formed along a former core lip. Along one of these margins, smaller percussion flake spalls and hinge fracture scars may co-occur. Also, minute flake spalls may be found on both sides of the working edge.

b. Type B: Large, Convex Side Scrapers (8 examples: 16 elements). These represent thick core fragments and two complete, ovate cores. The working face is located on the flatter side of these artifacts. They range in plan view from triangular to ovoid and from triangle to plano-convex in cross section (Figure 9:E and G).

Working edges have been percussion flaked into a rounded, lateral margin, viewed from the anterior side. Unlike core-scrapers, these have intentionally shaped, lateral margins. The type of wear patterns and intensity of use is comparable with Core Scrapers.

c. Type C: Small, Convex Side Scrapers (3 examples: 6 elements). Two of these have shaped, lateral margins while the third is unshaped. The latter may be termed "utilized", since a few small flake spalls occur along the working edge on the lateral margin. The example is chunky, square in outline and triangular in cross section.

The two shaped scrapers, also formed from chunky flakes, stand on one small side so that the longitudinal axis is at or near right angles to the posterior working plane (Figure 10:A). Their working edge was formed by pressure flaking. Use scars occur in the form of small step fractures at the lateral edge, above the posterior side. The examples are rhomboid to triangular in cross section.

d. Type D: Ovate, Backed Chopper-Scraper (1 example: 2 elements). The specimen is a well-shaped, percussion flaked artifact (Figure 10:B). The thick, large tool was end-struck from a core creating a somewhat flat ventral surface and convex dorsal surface. Several large percussion flakes were driven off the dorsal face then smaller secondary percussions dressed the edges around most of its margins, both ventral and dorsal faces. Use scars consist of minute conchoidal flake spalls on the lateral margin and heavy step fractures on both the lateral margin and posterior side, nearest the working edge. Use scars are particularly notable on its narrower, rounded ends. The

rounded ends are somewhat blunt, due to use, appearing to represent chopping activities. The sharper, longer margins seem to represent scraping activities. The artifact is plano-convex in cross section with the flatter posterior surface undulating along a straight plane.

e. Type E. Concave Side Scrapers (3 examples: 6 elements). All specimens are formed from chunky irregularly shaped, core fragments. They are respectively roughly rhomboid, rectangular and triangular in plan view, and trapezoidal, square and rectangular in cross section. On two examples, the concave edge was formed by percussion flakes driven from the lateral margin (Figure 10:C). In all instances, use and retouch scars occur on the lateral margins, rarely on the posterior working face. Scars occur from primary retouch and minute conchoidal spalls. Step fracturing accompanies these attributes.

3. Class 3: Miscellaneous Scrapers (Figure 10:D-H). The group consists of artifacts which have attributes in common with flake scrapers, plane scrapers as well as knives. They possess one bifacial or unifacial knife edge element and one unifacial scraper edge element.

a. Type A: Flake, Knife-Scraper (2 examples: 4 elements). Both are formed from relatively thin primary flakes. One example is truncated on one edge. The other appears to have been a contracting end-struck flake. They are triangular in outline and lenticular to triangular in cross section.

On one, the unifacially flaked, knife edge is located along one lateral margin opposite the thicker, lateral margin of the scraping edge (Figure 10:D). Both margins occur on the ventral side of the primary flake. The scraping edge was created by pressure flaking and is overlain by step fractures on the lateral margin. Smaller pressure retouch scars are found on the opposite, cutting edge.

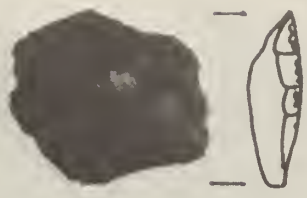
The second specimen has been bifacially percussion flaked on one margin and unifacially pressure retouched on the opposite margin. The scraping edge is broken down into steep lateral margins due to heavy use. Scraping scars consist of unifacial step fracturing at the lateral margin.

b. Type B: Knife-Platform Scrapers (14 examples: 28 elements). The majority are knife fragments with one scraping edge. Many appear to have been fractured during the process of initial percussion shaping, though several

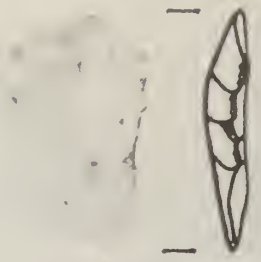
FIGURE 9: SCRAPERS

26 CK 1481 40-50 CM 26 CK 1481 0-10 CM 26 CK 1482 10-20 CM

A. TYPE 1A SCRAPER



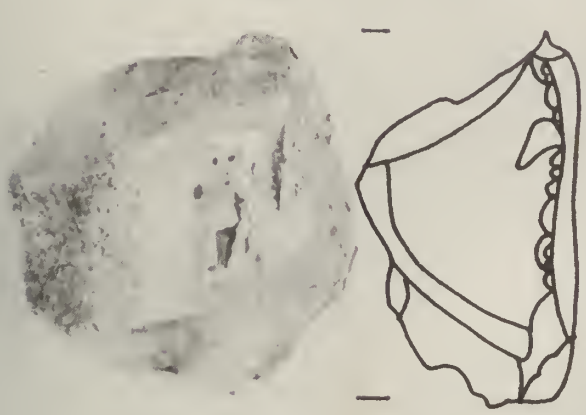
B. TYPE 1B SCRAPER



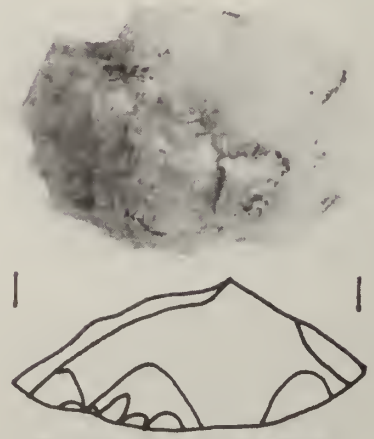
C. TYPE 1C SCRAPER

26 CK 1481 20-30 CM

26 CK 1482 10-20 CM



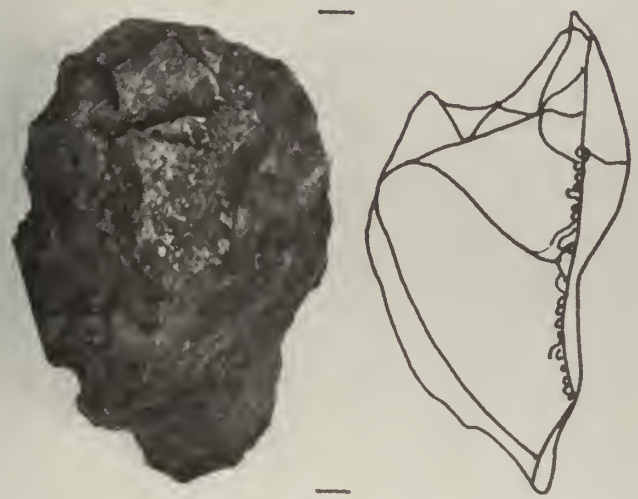
D. TYPE 2A SCRAPER



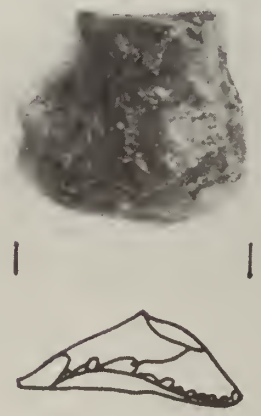
E. TYPE 2B SCRAPER

26 CK 1481 20-30 CM

26 CK 1481 0-10 CM



F. TYPE 2A SCRAPER



G. TYPE 2B SCRAPER

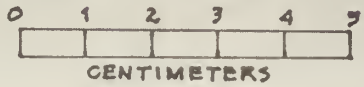


FIGURE 10 SCRAPERS

are finished, fragmented knives. Generally, the fractured edge lies at right angles to the knife edge and has been pressure and percussion flaked into a scraper; however, the scraping and the cutting edge may also lie along the same plane, on opposite lateral margins (Figure 10:E, F and H).

The artifacts must stand on a narrow platform so that the working face lies at an oblique angle to its longitudinal axis, similar to Small, Convex Side Scrapers (Type C). The margins of the working edge may be shaped by either pressure or percussion flaking. Pressure retouch is found on several specimens and use scars consists of heavy to light flake spalls and step fractures. With the exception of some bifacial percussion scars, shaping and use scars are limited to the lateral margins.

Plan views and cross sections are highly variable. They may be characterized as flat in overall appearance, ranging from triangular to square in outline and rectangular to biconvex in cross section. Several retain their original material cortex.

Type C: Knife-End Scraper (1 example: 2 elements). Except for one convex end, the example is rectangular in cross section and rectangular in plan view. It appears to have been broken during manufacture, fractured perpendicular to the median axis, across its midsection. Large, bifacial percussion flake scars extend around most of its existing periphery. On its convex end, long pressure flakes have been driven off forming a straight unifacial scraping edge(Figure 10:G). Use scars were not discernable on the artifact.

4. Fragments. A total of seven scraper fragments were too small to include in the classification.

B. Knives (135 examples: 135 elements/Table 4 and Figures 11-13).

These are artifacts whose margins are sharp, typically viewed (edge-on) as bisecting the lateral edges along the longitudinal transverse section. They may be unifacially or, more commonly, bifacially flaked. Often, flaking extends over a large portion of their surface and has resulted in a well- shaped, usually flat artifact. Larger examples tend to be percussion flaked while smaller examples may be further altered by primary pressure flaking and later pressure retouch. Step fracturing may accompany the flake scars within the conchoidal fracture. Use patterns are not easily discernable, but smoothed margins typify an attribute

TABLE 4

KNIVES: SIZE, COMPOSITION
AND NUMBER OF EXAMPLES
26CK1481 AND 26CK1482

	No.	LENGTH Min.	LENGTH Max.	WIDTH Min.	WIDTH Max.	THICKNESS Min.	THICKNESS Max.	Material
B. KNIVES								
1. Flake Knives								
a. Unifacial	13	1.4	3.5	1.4	2.7	.3	.8	12 Chert 1 Obsidian
b. Bifacial	8	2.1	3.9	1.8	3.1	.4	1.0	8 Chert
2. Small, Thin Knives	4	2.4	3.4	.7	2.4	.5	.7	4 Chert
3. Thick, Convex Sided Knives	1		4.2		2.7		1.1	1 Rhyolitic
4. Small, Triangular Knives	1		4.4		2.0		.6	1 Basaltic
5. Ovate, Pointed Knives	2	4.4	5.1	3.3	3.9	1.1	1.5	2 Chert
6. Thick, Subrectangular Knives	1		6.2		3.3		1.5	1 Chert
7. Small, Discoidal Knives	2	3.4	3.7	3.3	3.4	1.0	1.5	1 Chert 1 Basaltic
8. Large, Ovate Shaped Knives	3	3.6*	5.3*	4.8	6.6	1.3	1.6	3 Chert
9. Large, Triangular Shaped Knives	4	4.5*	6.2*	4.3	5.0	.9	1.2	4 Chert
10. Thin, Subrectangular Shaped Knives	4	3.1*	4.3*	2.6	3.4	.7	.8	4 Chert
11. Thin, Stemmed Knives	2	4.1*	5.3*	2.6	3.1	.8	.8	2 Chert
12. Convex Bases	16	1.9*	5.0*	1.8	4.4	.7	1.9	16 Chert
13. Pointed Tips	27	2.3*	4.5*	1.2	3.8	.5	1.7	26 Chert 1 Quartzite
14. Midsections	23	1.6*	5.5*	.8*	4.3*	.2	1.4	21 Chert 1 Quartzite 1 Basaltic
15. Unclassified, Percussion Flaked	24	2.2*	7.8*	2.1*	5.1*	.7*	1.9*	24 Chert

*All or most examples are fractured along these dimensions.

associated with knives. This is particularly noted when viewed microscopically. Class and Type distinctions were based on factors of size, edge configuration and overall outline.

1. Class 1: Flake Knives (Figure 11:A-F). Similar to Flake Scrapers, the subgroup is represented by core produced flakes. However, these usually possess some remnant portion of their former feathered edge along which either unifacial or bifacial pressure flaking is found. The amount of flaking has not greatly altered the lateral margins and does not extend over either dorsal or ventral face of the original flake.

a. Type A: Unifacial Flake Knives (13 examples). The majority lack bulbs of percussion but appear to be largely end-struck rather than side-struck. Generally they are lenticular in cross section and rectangular in plan view, composed of blades and expanding flake spalls. Minor retouching is located on one edge of many specimens, along the lateral edge of the dorsal flake surface. Several may be typified as utilized flakes, and retouching is not evident (Figure 11:A, B and D).

b. Type B: Bifacial Flake Knives (8 examples). These are thicker than the previous specimens, similar to Flake Scrapers. They are lenticular to triangular in cross section and square to triangular in plan view. Bulbs of percussion are lacking on the examples due to breakage, though one is basally trimmed by one large pressure flake (Figure 11:C). All appear to have been fashioned from end-struck primary flakes (Figure 11:C, E and F).

Some edge shaping is evident on most of the artifacts. More characteristically, two or more lateral sides have been bifacially pressure flaked but little pressure retouch is evident. Shaped edges are usually convex to straight.

2. Class 2: Small, Thin Knives (4 examples/Figure 11:G-I). The four artifacts are bifacially and collaterally pressure flaked and are lenticular in cross section. One has been fractured proximally and is somewhat irregular in shape, with two concave lateral margins and a slight convex base (Figure 11:G). Some pressure retouch is associated with these edges.

Two examples possess straight bases from which one concave lateral margin extends over the artifacts' median line, forming one long curved edge and one short, straight opposite edge (Figure 11:H and I). Basal corners are sharp

on one specimen and rounded on the other specimen. Pressure flaking has dressed and thinned much of one face, little from the opposite face. Pressure retouch is notable, particularly on the dressed face.

3. Class 3: Thick, Convex-Sided Knife (1 example/ Figure 11:J). The knife has been unifacially percussion flaked in an attempt to thin the dorsal surface of the original primary flake. The flatter, ventral side is relatively unaltered except at its margins. Bifacial pressure flaking extends to both sides of one lateral margin and unifacial pressure flaking occurs on the opposite margin.

The working edges of the knife are slightly convex, reaching its greatest width at midsection. The tip is missing and the base is slightly convex. The bulb of percussion is present at the base. In cross section, the knife is biconvex at the base, tapering to a lenticular tip. Basal corners are rounded.

4. Class 4: Small, Triangular Knife (1 example/ Figure 11:K). The lateral margins are straight sided and its base is convex in plan view. It is lenticular in cross section. The outline of the margins are irregular in plan view and slightly sinuous in longitudinal transverse section.

The knife has older, step fractured surfaces over which secondary percussion retouch is found. However, the retouch was performed unifacially, alternate to the opposite lateral edge. The form of retouch was by collateral flaking.

5. Class 5: Ovate, Shaped Knives (2 examples/Figure 11:L). Both specimens have been bifacially percussion flaked. Edges are sinuous and step fractures occur along portions of the flake scars. Flaking is collateral, though much of the original cortex remains on both faces. They are biconvex in cross section and each have their tips broken.

They too may represent knife rough-outs subsequent to final flaking. However, they are sharp edged and may have been used in coarse cutting activities.

6. Class 6: Thick, Subrectangular Knife (1 example/ Figure 12:A). The artifact has two long, convex lateral margins and two small, convex ends. It is biconvex in cross section. Primary percussion flakes have been driven off both faces of the tool and small percussion flakes overlay these along the lateral margins. Step fracturing is common along the lateral margins and may be associated with either or both percussion flaking and scraping activities. Edges are sinuous and were formed by collateral flaking.

7. Class 7: Small, Discoidal Knives (2 examples/ Figure 12:B). Both are nearly circular in plan view and are plano-convex to biconvex in cross section. Each is also percussion flaked, one bifacially and the other unifacially. The latter retains much of its original cortex. The two have sinuous, collaterally flaked edges. As with Class 4 knives, these may represent rough-outs, but it is conceivable that they were used in coarse cutting activities.

Miscellaneous Knife Fragments. The following were distinguished on the basis of their remnant attributes.

8. Class 8: Large, Ovate-Shaped Knives (3 examples/ Figure 12:D). These have been fractured at midsection so that they are actually semicircular in shape. Each is biconvex in cross section.

Two of these have large percussion scars thinning most of both faces. Portions of their margins contain smaller, secondary percussion scars, forming a sharp, thoughsinuous cutting edge. One example has some of its original cortex remaining. The specimens are collaterally flaked.

9. Class 9: Large, Triangular-Shaped Knives (4 examples/Figure 12:E). These have been fractured on an acute angle across their midsections. Each appears to represent the proximal portion of a knife. They are lenticular in cross section.

Primary percussion and secondary percussion flaking is represented by large and small collateral scars adjacent to their sinuous margins. Step fracturing accompanies these scars and some minor pressure retouch flaking is evident. One example retains an unaltered ventral portion of the original primary flake.

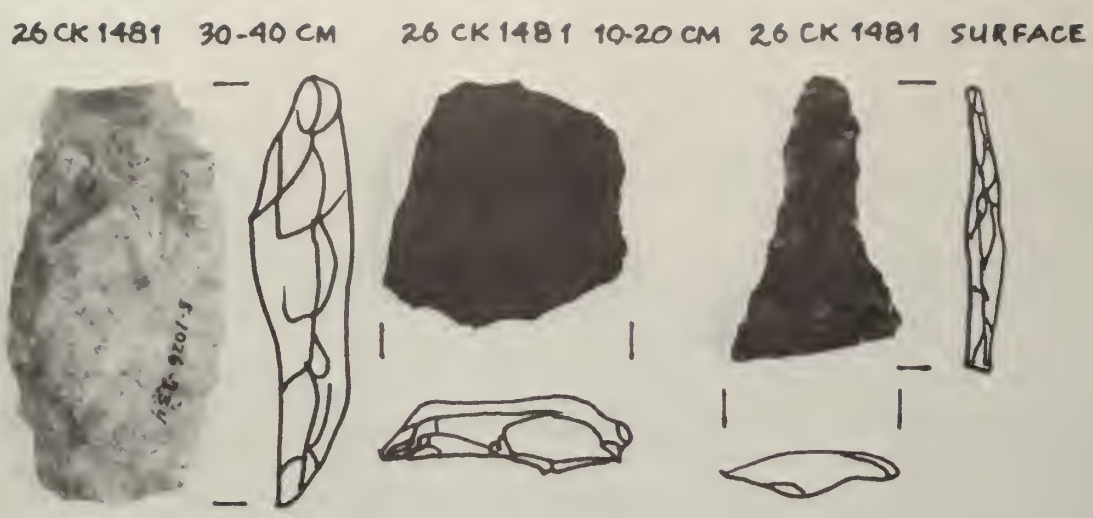
10. Class 10: Thin, Subrectangular-Shaped Knives (4 examples/Figure 12:F-H). These appear to represent basal segments, convex to straight in plan view. Basal corners are rounded. They are lenticular in cross section.

Two of these are bifacially percussion flaked with no further edge treatment. They possess a sinuous, though sharp cutting edge.

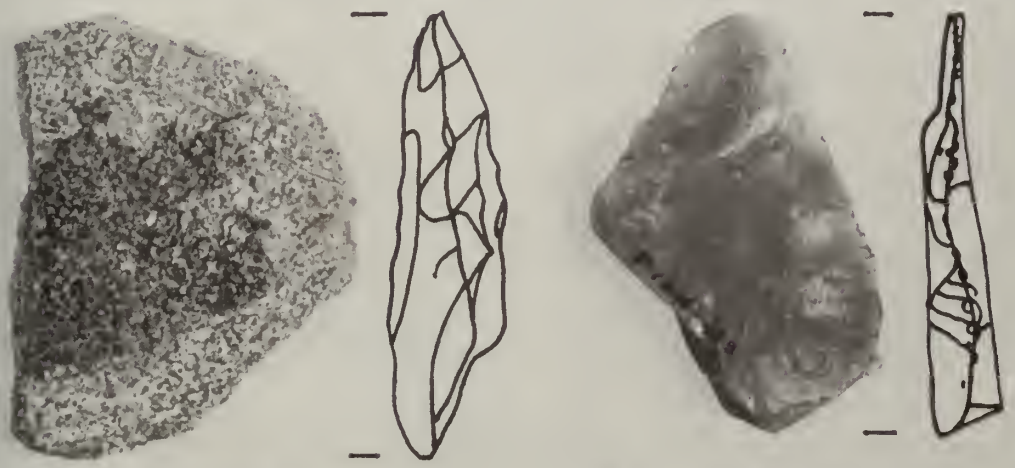
The other two are well shaped specimens, finely thinned by bifacial percussion and pressure flaking (Figure 12:F). Flake scars represent collateral and some oblique flaking. Pressure retouch occurs along portions of their margins. Remnant step fractures, associated with finer percussion flaking, also occurs.

FIGURE 11: KNIVES

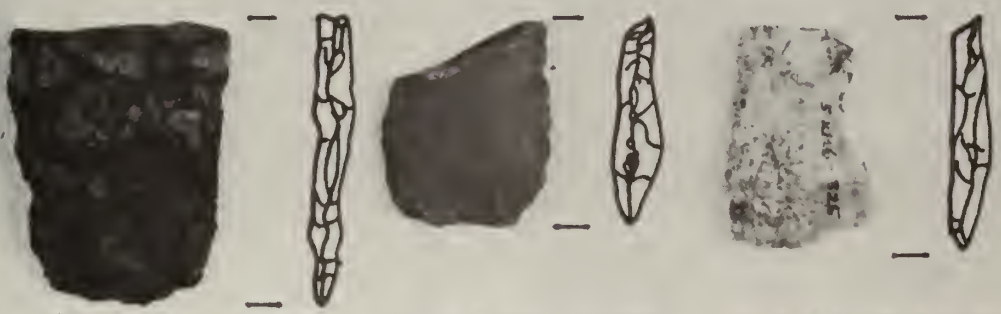
FIGURE 11: KNIVES



A. CLASS 6 KNIFE B. CLASS 7 KNIFE C. CLASS 11 KNIFE



D. CLASS 8 KNIFE E. CLASS 9 KNIFE



F. CLASS 10 KNIFE G. CLASS 10 KNIFE H. CLASS 10 KNIFE

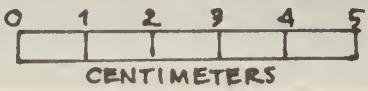
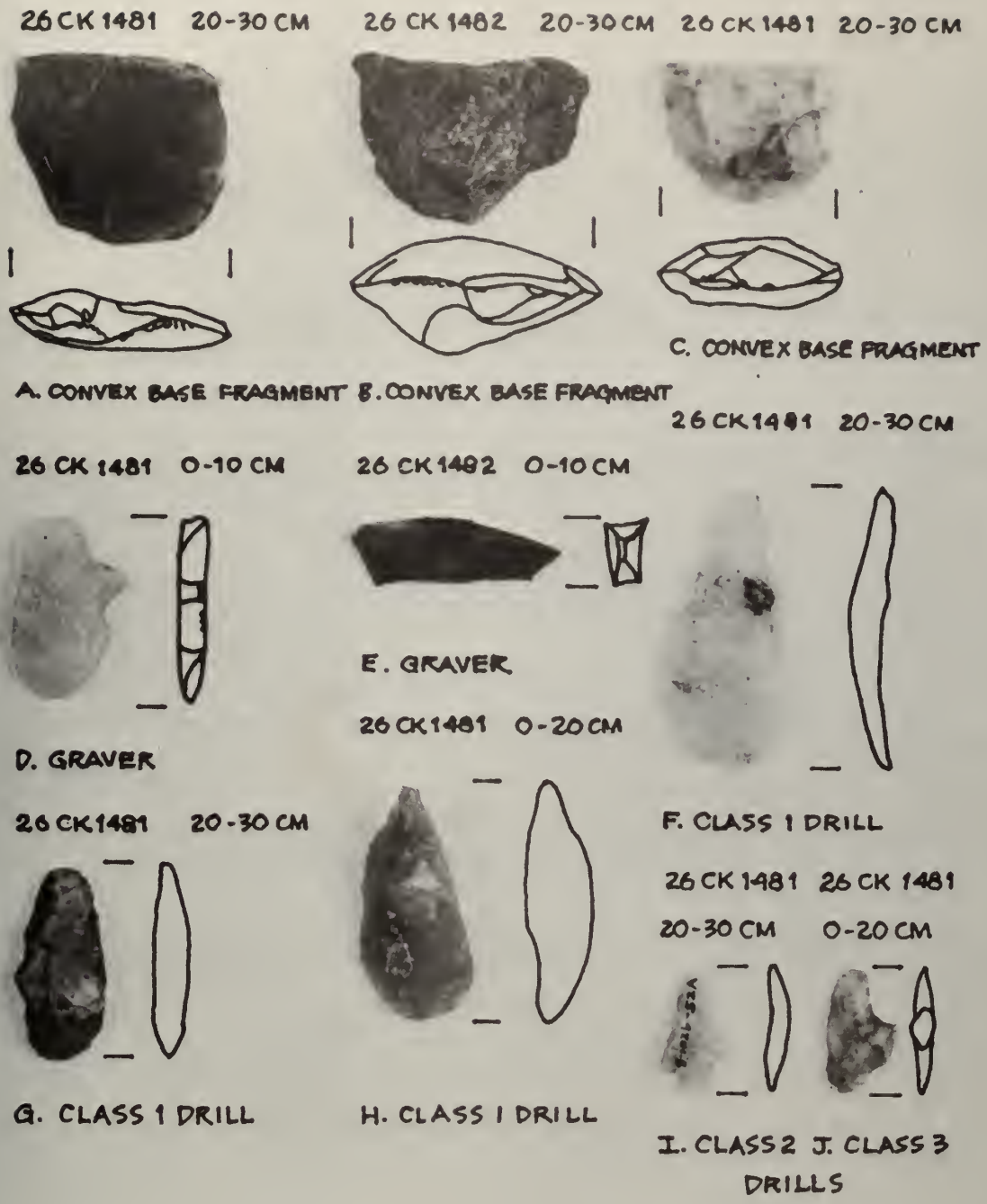


FIGURE 13: KNIVES, GRAVERS AND DRILLS



11. Class 11: Thin, Stemmed Knives (2 examples/ Figure 12:C). Two flaked stone tools were found to possess long stem-like projections extending from a large, fractured body. They are collaterally and bifacially pressure flaked with lenticular cross sections. The projecting stems are thin and spatulate in shape.

Both are retouched by pressure flaking along their knife-like margins except for a smoothed, untouched portion on one specimen. Also, on one, the flat fractured midsection was retouched on one face to produce a scraping edge element identical to those attributes described for the Class 3, Type B, "Knife-Platform Scrapers"

These were initially thought to have been drills, perhaps perforators. However, wear patterns assignable to drilling could not be observed nor could perforator activities be identified.

12. Convex Bases (16 examples/Figure 12:A-C). These basal fragments lacked too few attributes to classify further. Breakage patterns are largely transverse across the midsection with several fractures parallel to the median line of the original artifact. They range from thick biconvex to thin lenticular in cross section and retain flake scars representative of both percussion and pressure flaking.

13. Point Tips (27 examples). These were separated out from basal fragments due to their triangular shapes, though several may be basal fragments. Again, fracturing is commonly at right angles to the median line and like basal fragments, were broken below but near their midsections.

14. Midsections (23 examples). Similar to the previous two groups, these appear to represent finished knives, broken into edge and midsection fragments.

15. Unclassified, Percussion Flaked Fragments (24 examples). Many of these are highly irregular in shape and appear to indicate breakage during the process of primary percussion flaking. On many, the original material cortex is still present and fracturing appears related to material irregularities. Several may have been used as coarse cutting tools.

C. Gravers (2 examples: 4 elements/Table 6 and Figure 13).

Two artifacts located in the collection appear to represent graving activities. One is a narrow fragment of a knife or point midsection (Figure 13:D) while the other has been shaped from a knife base (Figure 13:E). The latter is lenticular in cross section and has a general ovate outline except for a small projection extending from one lateral margin. The projection is formed by unifacial pressure flaking creating large notches on either side of the graving tip. The tip has a small, flat, but sharp edge, beveled to one face of the knife edge element. The bevel is created by a single, thin pressure flake. Under a 20x microscope, minute conchoidal use scars and step fracturing occur unifacially along the lateral edge, not extending onto the posterior plane, except for one conchoidal scar. Slightly larger scars also occur within one of the notches and may suggest an additional scraping element.

The other example is plano-convex is cross section and nearly rectangular in plan view. A small fracture on one lateral margin has created a sharp point about which are several minute conchoidal use scars. The tip is somewhat rounded by use if viewed under the microscope.

D. Drills (16 examples: 20 elements/Table 6 and Figure 13)

Attributes sought for identifying drilling activities included overall stoutness of the artifact, particularly including a narrowed shaft approaching the tip. Other factors considered included tanged or barbed bases, rounded lateral edges at the tip, as well as use patterns at or near the tip. Use patterns consist of two or more attributes including step fracturing parallel with both lateral edges, smoothed margins, and tip breakage running diagonally across one face and/or lateral margin.

Many of the drill examples discussed below possess obvious similarities with projectile points. In fact, one stemmed point was included in this category since its shaped appeared to relate more to a finished drill. Lastly, three Desert Side Notched points, discussed later, possess drill tips as identified through magnification (Figure 15:A, D and F).

1. Class 1: Convex-Based Drills (5 examples: 8 elements/ Figure 13:F-H). These are biconvex to lenticular in basal cross section and triangular to leaf shaped in plan

TABLE 5

POINTS: SIZE, COMPOSITION
AND NUMBER OF EXAMPLES
26CK1481 AND 26CK1482

	No.	LENGTH Min.	LENGTH Max.	WIDTH Min.	WIDTH Max.	THICKNESS Min.	THICKNESS Max.	Material
E. POINTS								
1. Gypsum Cave Points	1	incomplete			2.5		1.0	1 Chert
2. Humboldt Points								
a. Large Concave Based	1	incomplete			2.8		.7	1 Obsidian
b. Narrow Concave Based	1	incomplete			2.0		.7	1 Chert
3. Elko Series Points								
a. Elko Side Notched	8	incomplete		2.0	2.3	.5	1.0	7 Chert 1 Obsidian
b. Elko Split Stemmed	1	incomplete			2.0		.5	1 Chert
c. Elko Corner Notched	2	incomplete			2.8	.4	.5	2 Chert
4. Rose Springs Points								
a. Rose Springs Expanding Stem	1	incomplete			1.9		.4	1 Chert
b. Rose Springs Contracting Stem	2	incomplete		1.4	1.5	.4	.4	1 Chert 1 Obsidian
c. Rose Springs Corner Notched	3	incomplete		1.3	1.7	.3	.4	2 Chert 1 Obsidian
d. Rose Springs Side Notched	2	1.5	2.1	1.4	2.0	.4	.5	1 Chert 1 Obsidian
5. Desert Side Notched Points								
a. V-Notched Base	3	1.8	2.7	1.0	1.5	.2	.3	3 Chert
b. Notched Base	5	1.7	2.5	1.0	1.2	.2	.3	3 Chert 2 Obsidian
c. Concave Base	1	incomplete			.9		.2	1 Chert
d. Straight Base	1	incomplete			1.0		.3	1 Chert

TABLE 5 (Cont.)

POINTS: SIZE, COMPOSITION
AND NUMBER OF EXAMPLES
26CK1481 AND 26CK1482

	No.	LENGTH Min.	LENGTH Max.	WIDTH Min.	WIDTH Max.	THICKNESS Min.	THICKNESS Max.	Material
6. Triangular Shaped Points								
a. Concave Based								
1) Small	4	1.6	2.3	1.3	1.6	.3	.4	4 Chert
2) Large	3	1.9	2.7	1.6	1.8	.3	.4	3 Chert
b. Straight Based								
1) Acute Triangular	1		2.2		1.4		.4	1 Chert
2) Parallel Sided	3	1.1	2.0	1.1	1.4	.3	.3	3 Chert
3) Equilateral Sided	2	1.3	1.8	1.2	1.5	.2	.4	2 Chert
c. Convex Based	2	1.9	2.0	1.9	2.0	.6	.7	2 Chert
7. Basal Fragments								
a. Corner Notched, Large, Convex Based	2	2.3	2.4	2.2	2.2	.5	.5	2 Chert
b. Contracting Stemmed	1		2.0		1.2		.4	1 Obsidian
c. Unclassified Bases	2	1.7	2.4	1.2	2.1	.5	.5	2 Chert
8. Tip Fragments	25	1.0	4.7	.6	2.4	.2	1.0	25 Chert
9. Midsections	13	1.5	2.4	.9	2.4	.4	.6	13 Chert

view. Three are bifacially pressure flaked, while the other two are unifacially pressure flaked except at the tip. One of the examples is indented near the tip, creating a parallel sided, though broad shaft (Figure 13:F). Drill tips are present on two other specimens, one rounded by extreme wear (Figure 13:G). The remaining two possess fractured tips with no further wear evident.

The specimens are collaterally flaked and several retain a portion of their original cortex. Also, three possess knife-like edges along part of most of their lateral margins (Figure 13:F and H).

2. Class 2: Small, Stemmed Drill (1 example: 2 elements/Figure 13:I). The nearly complete drill is identical to a Rose Springs Contracting Stem point except for its considerably thicker size. It is biconvex in cross section near its base, and is triangular in shape. It was formed by bifacial pressure flaking, collateral in technique. Basal corners are rounded.

3. Class 3: Bilaterally Tanged Base (1 example: 1 element/Figure 13:J). The drill fragment lacks most of its shaft. The bilateral tangs are unequally formed, one exceeding the length of the opposite tang. It is lenticular in cross section and has been bifacially pressure flaked.

4. Drill Fragments (9 examples: 9 elements). These consist of one basal, three midsection and five tip fragments. The basal fragment is a sharply pointed barb segment similar to the example illustrated by Warren et al (1978:22 and Figure 17B). The examples are all bifacially pressure flaked and range from rounded to lenticular in cross section.

E. Points (90 examples: 96 elements/Table 5 and Figures 14 and 15).

The point collection, particularly the tip and midsection fragments, were separated from knives on the basis of width, thickness, finer flaking techniques as well as basal treatment. The typological scheme attempts to follow Warren et al (1978), but point attributes vary between the two collections. The descriptive basis for creating types within the Hidden Valley assemblage included overall size and basal treatment. This is compared and contrasted to Warren et al (1978) in both description and illustration. Where similarites were located, references are cited.

1. Class 1: Gypsum Cave Point (1 example: 1 element/ Figure 14:A). The point was broken above its midsection at a crystalline flaw. The blade possesses sloping, concave lateral margins ending at sharp basal corners. The triangular-shaped stem has concaved margins, contracting towards a rounded basal point. It has been bifacially percussion flaked and exhibits both collateral and oblique flake scars. The lateral margins are heavily step fractured, appearing to have exhausted further opportunities for thinning the point. The artifact is biconvex in cross section.

2. Class 2: Humboldt Concave Based Point (Figure 14:B and C). The Class is represented by two base fragments retaining little of their lateral margins. Each appears to correspond to Warren's examples 1XA "Large concave base lanceolate" and 1XD "Narrow concave base lanceolate" types (1978:21 and Figure 23NN-PP and Figure 25 J-K).

a. Type A: Large Concave Based Point (1 example: 1 element). The larger fragment has lateral margins steeply contracting to sharp, pointed basal corners. The concave base is deep and broad. The artifact was shaped by bifacial pressure flaking and secondary unifacial pressure retouch on alternate sides of each lateral margin. Step fracturing is associated with retouching. The point is lenticular in cross section.

b. Type B: Narrow Concave Based Point (1 example: 1 element). The narrow example has straight, parallel margins ending in rounded corners. The concave base is shallow. The artifact was shaped by bifacial pressure retouch. No retouching nor step fracturing is evident. It is biconvex in cross section, somewhat thick in relation to its short width.

3. Class 3: Elko Series Points (11 examples). The eleven examples comprise the points identified for this Class, all of which are variously broken. The small sample resulted in less definitive types than presented by Warren et al (1978).

The points have been bifacially pressure flaked over most of their original surfaces. Several are pressure retouched along their margins and three of these have had their fractured margins reworked into possible knife edges.

a. Type A: Elko Side Notched (8 examples: 10 elements/ Figure 14:D-G). These possess various basal shapes ranging from convex to concave. Their basal corners and barbs are sharp to round. Notching tends to be broad and deep. The examples are thicker than Type B and C, and are biconvex to lenticular in cross section.

Two of these points have been reworked along portions of their fractured midsection. These areas are unifacially retouched by pressure flaking and appear to represent knife-edge elements (Figure 14:E).

b. Type B: Elko Split Stemmed (1 example: 2 elements/ Figure 14:H). The point may compare with Warren et al type IA1 point (1978:31 and Figure 21D). It has convex lateral margins reworked at the fractured midsection. Reworking is in the form of light, bilateral pressure retouch so that the lateral margins and fractured midsection curve into a blunt but round proximal knife-edge element.

The basal corners are sharp and pointed, formed as a result of the bilateral, oblique and narrow side notching. The base is convex, deep and less broad than Type A points. The eared barbs are squared at their distal margins. The point is lenticular in cross section.

c. Type C: Elko Corner Notched (2 examples: 2 elements/ Figure 14:I). The two point fragments lack portions of their base. These were included within this class based on their remnant basal styles.

One example possess a straight to convex lateral margin, but both specimens end in sharp, pointed basal corners. The basal notches are large and broad. On one the basal stem is slightly convex. The two are lenticular in cross section.

4. Class 4: Rose Springs Series Points. The group is composed of eight fragments. They are bifacially pressure flaked with additional pressure retouch on their lateral margins. The small, triangular shaped points range in basal treatment from corner to side notching and from expanding to contracting stems. As with the Class 3 points, the small sample does not compare well with the types presented by Warren et al (1978). This resulted in the formation of different descriptive headings.

a. Type A: Rose Springs Expanding Stem (1 example: 1 element/Figure 14:K). The point appears to have been triangular in plan view with straight or slightly convex lateral margins. Basal corners are sharp and the barbs are squared at their distal margins. The bilateral

notches are thin, deep and triangular in outline. The stem expands slightly towards a convex base. The point is lenticular in cross section.

b. Type B: Rose Springs Contracting Stem (2 examples: 2 elements Figure 14:L and M). These are smaller in length and width than the Type A point. Both are broken above their midsection, but appear to have been triangular in shape. Lateral margins are straight with some slight concave or convex variance. Basal corners are sharp, ending into small, square barbs. The bilateral notches are small and rounded. Stems are short, contracting towards a convex base. These are lenticular in cross section.

c. Type C: Rose Springs Corner Notched (3 examples: 3 elements/Figure 14:N). The three are fractured at both their midsection and their bases. Remnant barbs suggest thin, deep notching. Lateral margins are sloping to parallel, straight edges. The latter is associated with fine serrations. They are thin in cross section, comparable to Desert Side Notched points.

d. Type D: Rose Springs Side Notched (2 examples: 2 elements/Figure 14:J). The examples contain some portion of their original bases. One is nearly complete, has been fractured at its tip and pressure retouched into a round point. This example is triangular in shape with concave lateral margins. Its basal corners are rounded.

Both specimens have shallow, somewhat broad notches. The barbs are pointed or rounded. One specimen has a slight convex base. Each is lenticular in cross section.

5. Class 5: Desert Side Notched Points. The class consists of eleven specimens. All are well executed, pressure flaked examples. Thinning is limited to the dorsal side of the original flake with minimum trimming of its ventral surface. They are lenticular in cross section and triangular in plan view. Three specimens have had their tips fashioned into narrow drills.

The types of distinctions within the class are made on the basis of basal treatment, following the descriptions provided by Warren et al (1978:35-36). However, it should be noted that variations cross cut this typological scheme, including lenth/width ratio, the style of the barbs and the shape of the side notches. One point fragment in the class could not be typed.

a. Type A: V-Notched Base (3 examples: 4 elements/Figure 15:A-C). These are composed of acute to equilateral shaped triangles. Basal notching is deep, creating a V-shaped appearance. The smaller side notches vary from narrow to rounded. The barbs are sharp, nearly square or triangular. A drill tip is located at the tip of an acute triangle point (Figure 15:A).

b. Type B: Notched Base (5 examples: 7 elements/Figure 15:D-G). Three are acute sided while one is equilateral sided. The fifth is a base fragment. Basal notches are small and rounded on four examples, tiny and squared on the fifth example. Side notching is small and rounded. The barbs are sharp on all corners, but tend to be rounded nearest the side notches. Barb shapes range from square to triangular. Two of these points, both acute sided, have had their tips worked into drills (Figure 15:D and F). On one, a second notch occurs on one of its barbs.

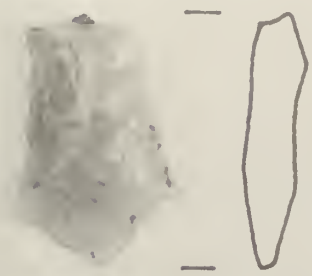
c. Type C: Concave Base (1 example: 1 element/ Figures 15:H). The point fragment is broken at its mid-section and at one barb. In constrast to all the other Desert Side Notched points, the specimen possesses nearly parallel lateral margins. The base is concave in shape and side notching is narrow, comparable to one of the Type A points. Barbs are sharp and triangular in shape.

d. Type D: Straight Base (1 example: 1 element/ Figure 15:I). The point is broken above its midsection. Basal notching is shallow, but rounded, creating a rather weak, small barb.

6. Class 6: Triangular Shaped Points. The Class includes all points and fragments with little basal modification other than concave, convex or straight shapes. They are triangular in plan view, comparable in size to Desert Side Notched and Rose Springs Series Points. The fifteen examples which comprise the group are pressure flaked except for one percussion flaked, base fragment. Many exhibit small, pressure retouch scars along their lateral margins. At times, step fracturing occurs near the margins in association with both pressure and percussion flake scars. The basis for describing types within the class incorporate Warren et al (1978:36-39). However, descriptive differences between the two collections resulted in some revision of the type headings, and is more inclusive than presented by Warren.

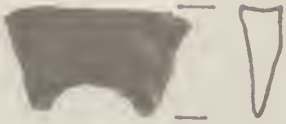
FIGURE 14 - POINTS

26 CK 1482 40-50 CM



A. CLASS 1 POINT

26 CK 1481
30-50 CM

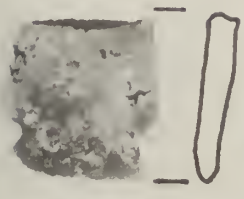


B. TYPE 2A POINT

26 CK 1481
10-20 CM

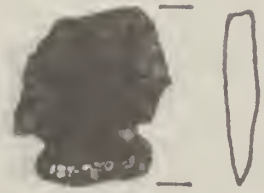
C. TYPE 2B POINT

26 CK 1481
10-20 CM



D. TYPE 3A POINT

26 CK 1481
10-20 CM

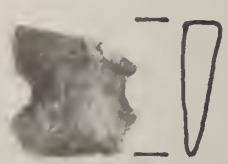


E. TYPE 3A POINT

26 CK 1482
70-80 CM

F. TYPE 3A POINT

26 CK 1482
60-70 CM



G. TYPE 3A POINT

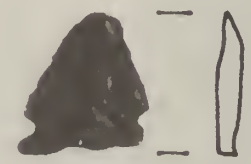
26 CK 1482 90-100 CM

H. TYPE 3B POINT

26 CK 1481 20-30 CM

I. TYPE 3C POINT

26 CK 1481 20-30 CM



J. TYPE 4D POINT

26 CK 1481
20-30 CM

K. TYPE 4A POINT

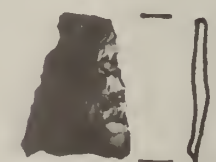
26 CK 1481
0-20 CM

L. TYPE 4B POINT

26 CK 1481
10-20 CM

M. TYPE 4B POINT

26 CK 1482
20-30 CM



N. TYPE 4C POINT

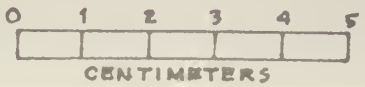
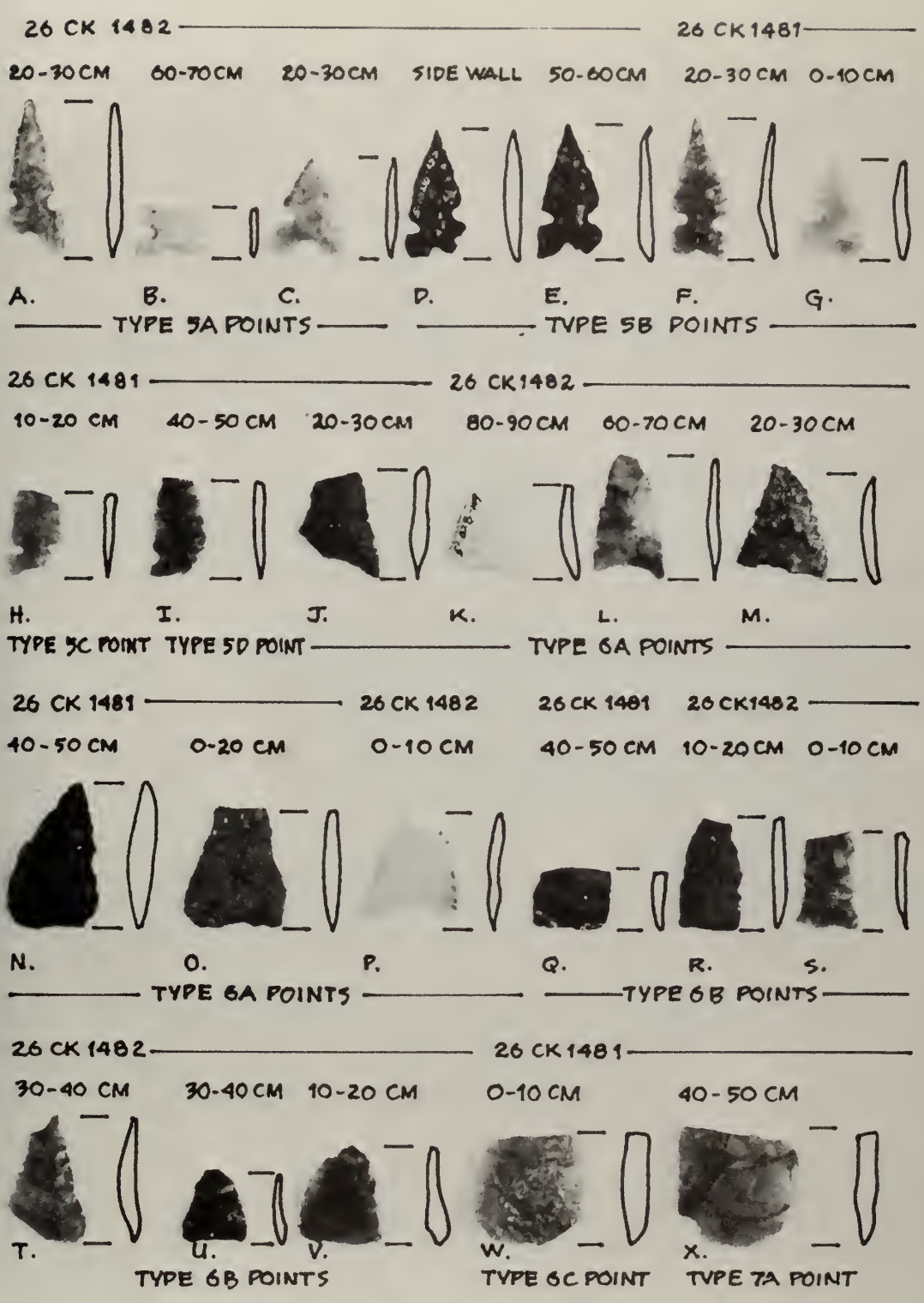


FIGURE 15: POINTS



a. Type A: Concave Based (7 examples). Of the seven specimens, four are smaller in length and width than the remaining three points. Two subtypes were formed: small and large. All are lenticular in cross section and were formed from their primary flakes. Pressure flaking has thinned the original dorsal face of the flake but portions of its ventral surface are not thinned. Most possess complete basal margins and all but one are broken near or above their midsections. They are acute triangular points with thin parallel flaking scars. Marginal step fractures may be found.

1. Subtype 1: Small (4 examples: 4 elements/Figure 15:J-M). The small sized points possess concave to convex lateral margins. Basal corners are sharp and their concave bases are slightly to moderately deep. These generally compare with Warren et al., Type IVA and IVB points (1978:36).

2. Subtype 2: Large (3 examples: 3 elements/Figure 15:N-P). These have concave or convex lateral margins and sharp to rounded basal corners. They have deep to shallow concave bases.

b. Type B: Straight Based (6 examples). Three subtypes are described, together totalling six specimens. All are small in size and were grouped in terms of their margins: this included acute triangular, equilateral sided and parallel sided. All of these are comparable to Subtype 1 Concave Based points in size and flaking technique. All have complete or nearly complete bases.

1. Subtype 1: Acute Triangular (1 example: 1 element/Figure 15:T). The point is comparable in shape to Subtype 1 Concave Based points except for its straight base. Its lateral margins are concave and are slightly serrated. It possesses rounded basal corners.

2. Subtype 2: Parallel Sided (3 examples: 3 elements/Figures 15:Q-S). Two are long, narrow examples broken above their midsection while the other is a wider basal fragment. They tend to have sharp basal corners. The largely parallel sided artifacts possess concave to convex margins. These may correspond to Warren et al., Type IVE points (1978:37).

3. Subtype 3: Equilateral Sided (2 examples: 2 elements/Figure 15:U and V). Both have rounded lateral margins, sharp to rounded basal corners, and slightly concave to convex bases. The two are nearly complete, broken at their extreme tip.

c. Type C: Convex Based (2 examples: 2 elements/ Figure 15:W). The two speciemens are basal fragments broken below their midsection. They are large, comparable to Subtype 2 Concave Based points, except their thickness exceeds all other points within the class. They possess convex lateral margins and sharp to rounded basal corners. Both are biconvex in cross section. One has been percussion flaked while the other is pressure flaked. However, the latter is unfinished, still retaining a portion of the original flake platform at its base (Figure 15:W). These may correspond to Warren et al., VIA and VIC points (1978:38-39).

7. Class 7: Miscellaneous Basal Fragments (5 examples). Five basal fragments could not be typed within the previous classes and are discussed in this category.

a. Type A: Corner Notched, Large Convex Based (2 examples: 2 elements/Figure 15:X). Both have slightly indented margins at their distal end. The short stems are either slightly expanding or contracting ending in a convex base. Lateral margins are parallel to sloping and straight edged. They are bifacially pressure flaked with no further retouching. Cross sections are lenticular and they have been broken below their midsection.

b. Type B: Contracting Stemmed (1 example: 1 element/ Figure not shown). The third specimen is a basal fragment with little of its lateral margins present. It consists of a long, narrow stem contracting towards a convex base. It is lenticular in cross section and has been pressure flaked.

c. Type C. Unclassified bases (2 examples: 2 elements/Figure not shown). These consist of one convex based and one concave based fragment. They are pressure flaked and lenticular in cross section. Both are too incomplete for including in all the previous classes.

8. Tip Fragments (25 examples: 25 elements). The fragments are generally thinner in cross section than those classified as knife fragments. The group includes 10 examples retaining their tips and 15 others lacking their extreme tips. They are lenticular in cross section and all have been pressure flaked.

9. Midsection Fragments (13 examples: 13 elements). These are thin in cross section and have been pressure flaked. They consist of trapezoidal and triangular fragments.

F. Hammerstones (9 examples: 18 elements/Table 7 and Figure 16 and 17).

A total of nine hammerstones were identified through analysis. Of these, two are larger, cobble-sized hammerstones while seven others are small pebble-sized hammerstones. Wear patterns are variable on the examples and may be exemplified by pitted and/or step fractured scars often rounding and/or smoothing the lateral margins of the tool. This may be due to the technique employed, the type of activity represented and/or the characteristics of material fracture and attrition.

The following classes were formed utilizing the descriptive terminology employed Warren et al. (1978) with some additional changes.

1. Class 1: Globular Hammerstone (1 example: 2 elements/Figure 16:A). The square-shaped specimen has several large spalls fractured off its original cortex as a result of heavy battering activities. Pitted scars and marginal step fracturing are found both along the lateral edges and remnant flat areas of the remaining cortex. Pitting consists of deep, round to long (1 centimeter in length) crushed points, indicative of intense, percussion blows. At times, smoothed areas are associated with pitting on flatter surfaces. Smoothing is limited to small higher points of the stone, and appears indicative of a grinding element.

The tool may have been used in direct and indirect battering activities. The latter would require an intermediary, as may be represented by the Class 5 example. This activity could be explained in the shaping of other tools, particularly groundstone slabs. However, direct percussion techniques may also be represented within the wear pattern.

2. Class 2: Large Discoidal Hammerstone (1 example: 2 elements/Figure 16:B). The flat cobble has been battered around two-thirds of its lateral margins ending where a natural, flat platform occurs. The peripheral working edge has been rounded by intense, but localized battering and grinding. Wear patterns include step fracturing and smoothing of an otherwise sharper edge than found on the Class 1 example. One rounded peak near the platform has been abraded into a smooth surface. Under a microscrope, this reveals nearly parallel striations at right angles to the lateral margin.

The artifact may represent use in pounding and grinding activities associated with the processing of plant products, perhaps for food preparation. Use could also include direct percussion in the manufacture of primary flakes from cores.

3. Class 3: Small, Ovate Hammerstone (5 examples: 10 elements/Figure 17:A and C). In appearance all seem to represent various rough-out stages in the production of knives. Most of the original pebble cortex has been removed by intentional percussion flaking creating bifacial, sinuous lateral margins. Along one or more portions, this edge has been rounded by step fractures, at times with crushed and smoothed edges.

These small hammerstones may be related to finer percussion flaking techniques. This could include the production of finer spalls and blades from a core, the initial roughed-out shaping of larger tools and the final shaping of percussion flaked tools previously discussed.

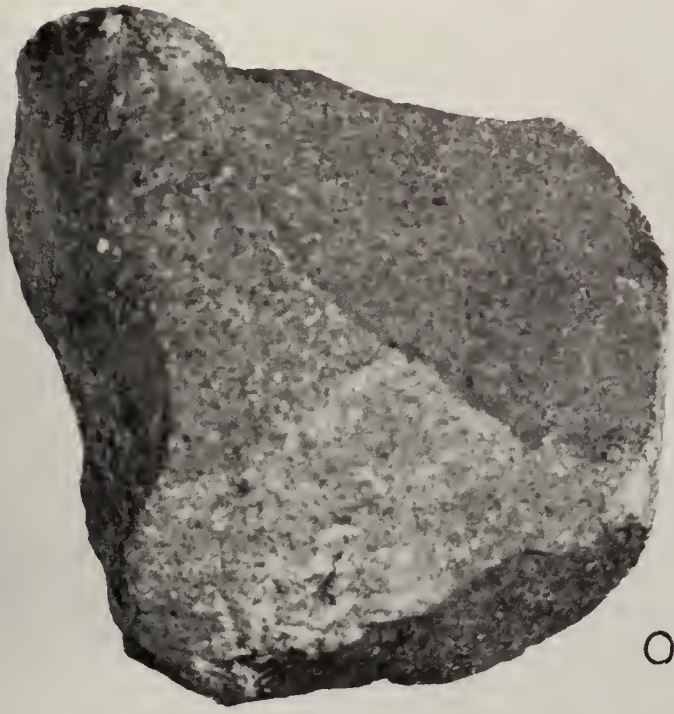
4. Class 4: Small, Rounded Core-Hammerstone (1 example: 2 elements/Figure 17:B). The artifact is round in shape and is representative of a small core with multi-directional flake scars. One of its lateral edges has been battered into a round, almost flat surface. Wear scars are composed of heavy step fracturing.

The multi-use tool appears to have been used in direct percussion flaking. Its thick battered margins seem more characteristic of primary flake production, perhaps including tool rough-out.

5. Class 5: Small, Rectangular Hammerstone (1 example: 2 elements/Figure 17:D). The elongated specimen is angular, trapezoidal in cross section at one end and tapering to a triangular cross section at the opposite end. It is formed from a chunky core fragment.

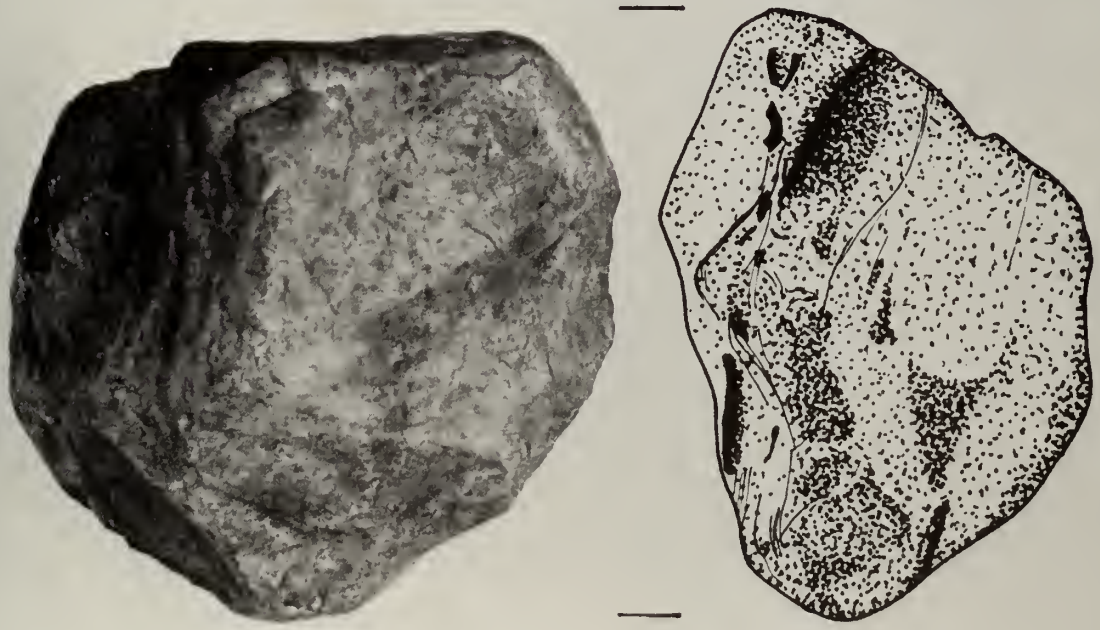
FIGURE 16: HAMMERSTONES

C. CLASS 1 HAMMERSTONE 26 CK 1481



0-20 CM

B. CLASS 2 HAMMERSTONE 26 CK 1482



30-40 CM

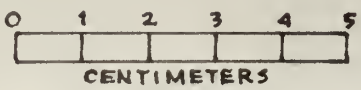
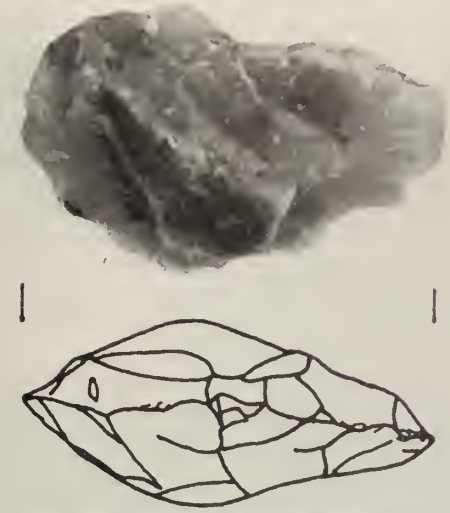


FIGURE 17: HAMMERSTONES AND CORES

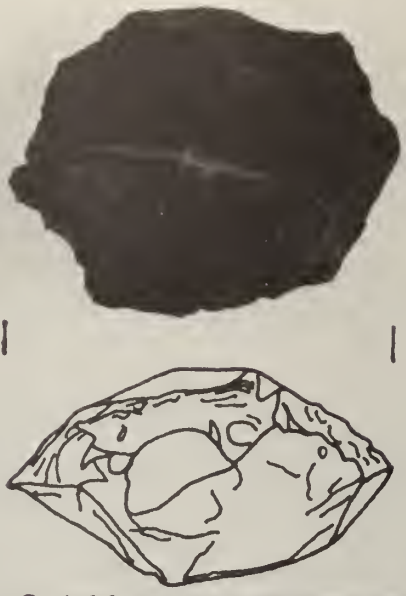
26 CK 1481 0-20 CM



A. CLASS 3 HAMMERSTONE

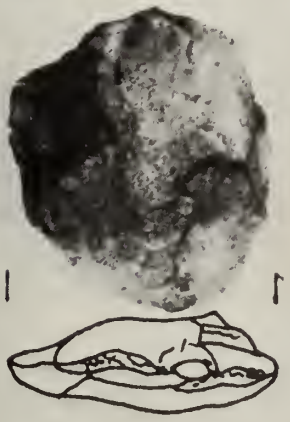
26 CK 1481 30-40 CM

26 CK 1482 20-30 CM



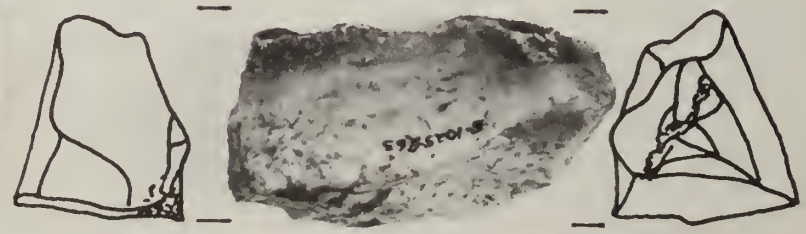
B. CLASS 4 HAMMERSTONE

26 CK 1481 0-10 CM



C. CLASS 3 HAMMST.

26 CK 1482 20-30 CM

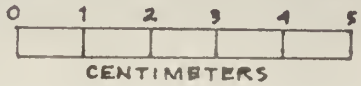


D. CLASS 5 HAMMERSTONE

26 CK 1482 80-90 CM

E. CLASS 3 CORE

F. CLASS 2 CORE



Battering scars occur at both ends, overlapping portions of the original flake scars. The triangular shaped end terminates into a single, straight working edge about which step fractures and crushing are evident. The artifact may represent an intermediary, used in conjunction with the Class 1 Hammerstone.

G. Cores (25 examples: 25 elements/Table 8 and Figure 17 and 18).

Cores as a category are delineated from other large, irregularly shaped tools based on the numbers and sizes of large flake spalls, the presence of lips and peaks, and the sharpness of their marginal edges. These areas may be associated with step fracturing within the negative flake surface and at the point of percussion on top of the platform. These fractures do not cross over the marginal edge along both sides of the platform. Heavy hinge fractures and perpendicular fracture planes may also be present.

The group consists of both complete and fragmentary cores. Fragments were included if several remnant negative scars were present, more representative of core attributes than intentionally derived flake waste. The classes discussed below were based on general sizes and shapes. Some discussion is also provided with reference to cores and fragments re-used as scrapers, as well as the Class 4 Hammerstone.

1. Class 1: Core-Choppers (3 examples/Figure 18:A). The group consists of two complete and one fragmentary example. One complete specimen was fractured in two halves. They resemble choppers in form but not in function. The two complete examples are irregularly shaped and plano-convex in cross section. They are bifacially percussion flaked, as exemplified by large, hinge fractured spall scars. Their lateral edges are rough and sinuous containing sharp peaks and lips. Some of the original cortex is found on both faces of this multi-directional core.

All of the examples show primary flake production from original flatter shaped cobbles. Unifacial step fractures along areas of the flake scar near the edge do not cross over onto the opposite face. Bilateral edge reduction attributable to chopping activities was not present.

2. Class 2: Rounded Core (1 example/Figure 17:F). The specimen contains multi-directional flake scars resulting from primary flakes taken off the material in more than one direction. It is ovate in plan view and plano-

TABLE 8

CORES: SIZE, COMPOSITION
AND NUMBER OF EXAMPLES
26CK1481 and 26CK1482

	No.	LENGTH Min.	LENGTH Max.	WIDTH Min.	WIDTH Max.	THICKNESS Min.	THICKNESS Max.	Material
G. CORES								
1. Core-Choppers	3	7.0	10.4	3.3	8.6	2.0	4.0	1 Chert 1 Limestone 1 Granitic
2. Rounded Cores	1		6.1		4.8		3.3	1 Chert
3. Ovate Cores	3	4.9	6.6	3.6	5.1	2.1	2.4	3 Chert
4. Triangular Cores	1		4.1		4.9		4.2	1 Chert
5. Core Fragments	17	2.7	8.2	2.0	5.8	1.3	3.3	16 Chert 1 Quartz

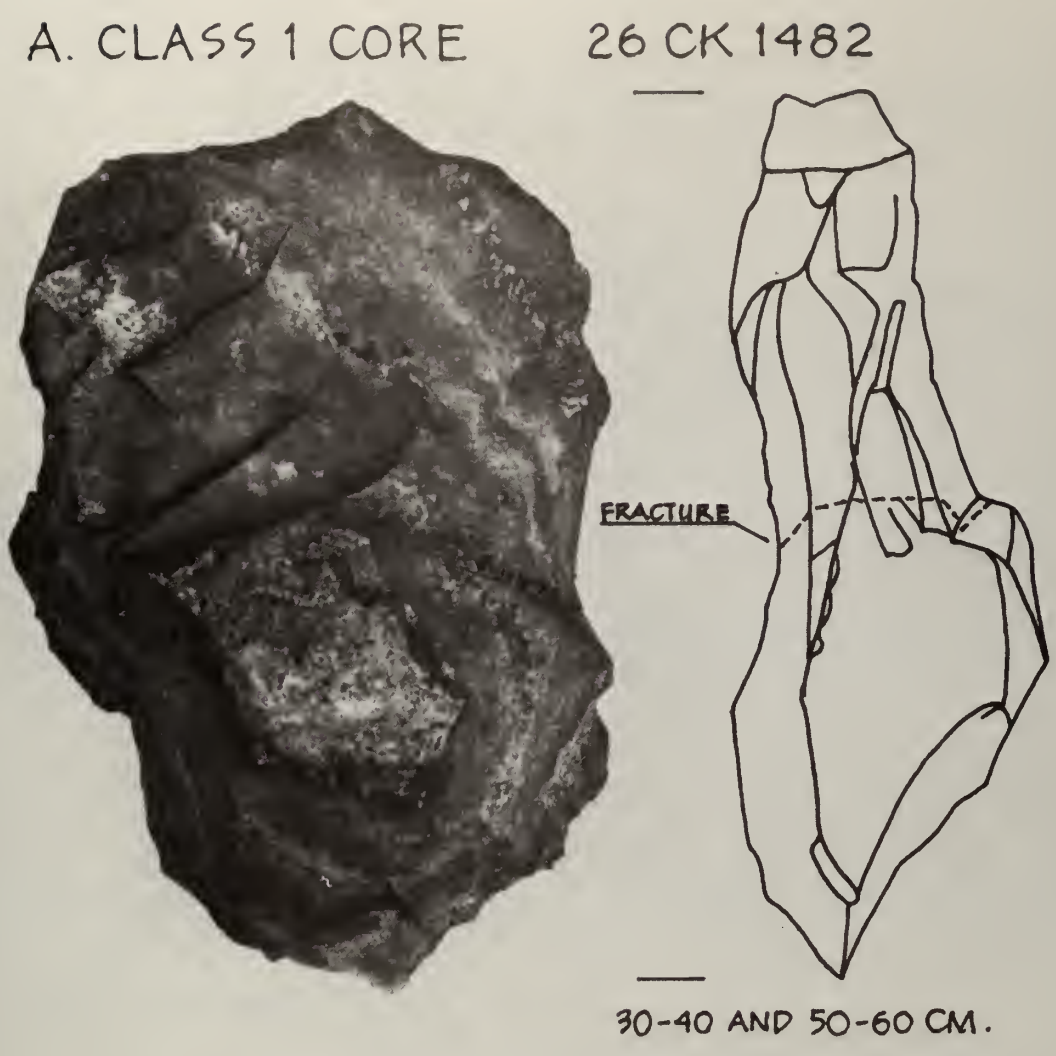
TABLE 9

GROUNDSTONE and ABRADING STONE:
SIZE, COMPOSITION
AND NUMBER OF EXAMPLES
26CK1481 and 26CK1482

	No.	LENGTH Min.	LENGTH Max.	WIDTH Min.	WIDTH Max.	THICKNESS Min.	THICKNESS Max.	Material
H. GROUNDSTONE								
1. Handstones								
a. Ovate Handstones	2	10.8	11.3	8.2	9.2	3.7	4.7	2 Granitic
b. Cobble Handstones	1		9.9		9.1		5.6	1 Granitic
2. Groundstone Slabs								
a. Unshaped Groundstone Slabs	7*	39.0	48.0	29.0	30.0	12.0	12.0	5 Sandstone 2 Limestone
b. Pecked Groundstone Slabs	8*		48.0		28.0		11.0	6 Sandstone 2 Limestone
3. Abrading Stone	1		9.5		5.5		2.4	1 Limestone

*Only complete examples represented in the measurements

FIGURE 18: HAMMERSTONES AND ABRADER



convex in cross section. The example is comparable to core elements found on Type 2A Scrapers and the Class 4 Hammerstone.

3. Class 3: Ovate Cores (3 examples/Figure 17/:E). These are multi-directional cores flaked into ovate shapes, similar to but smaller than, Class 1. Core-Choppers. They are plano-convex to biconvex in cross section. Two core elements found in the Type 2B Scrapers are comparable to this group.

4. Class 4: Triangular Core (1 example/not shown). The artifact is a core fragment with two parallel flakes taken off its fractured platform. It is triangular in cross section.

5. Core Fragments (17 examples). The total count of core fragments does not reflect the 13 fragmented elements described in Scrapers, Types 2B, 2C, and 2D and in Hammerstones, Class 5.

H. Groundstone (18 examples: 20 elements/Table 9 and Figures 18 and 19).

Eighteen groundstone tools were identified, fourteen of which are groundstone slabs and fragments. Three complete handstones and one abrading stone is included in the total.

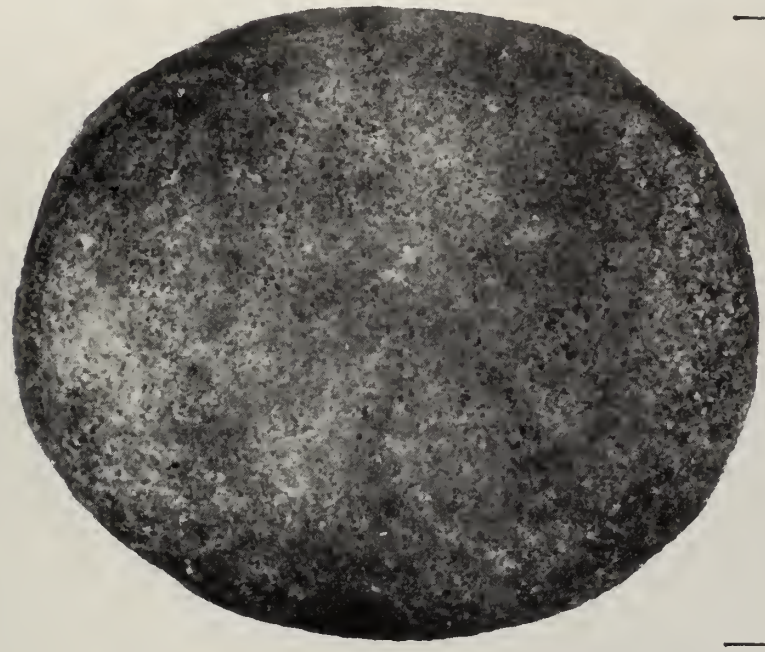
1. Handstones

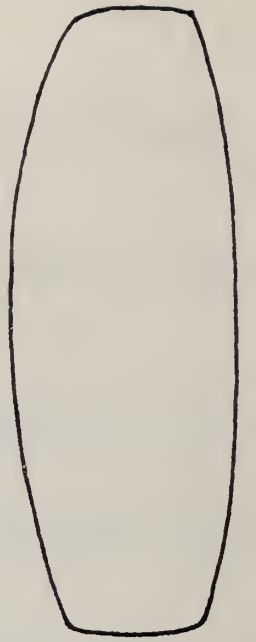
a. Class 1: Ovate Handstone (2 examples: 3 elements/ Figure 19:A). Both specimens are hand-sized. They are bifacially ground and their perimeters have been pecked creating an ovate to subrectangular shape. The pecked perimeter extends onto the margins of both faces. One example has a battering element similar to the next Class 2 specimen.

b. Class 2: Cobble Handstone (1 example: 2 elements/ Figure 19:B). The specimen is half-circular in shape, but has been pecked around its margins. It is bifacially ground and hand-sized. The pecked perimeter, which extends onto the margins of each face is nearly rounded on all sides except its flatter side. Here battering scars on its edges and corners are developed along several small planes, creating a faceted appearance. In many respects, these resemble attritional planes resulting from use as a hammerstone.

FIGURE 19. HANDSTONES

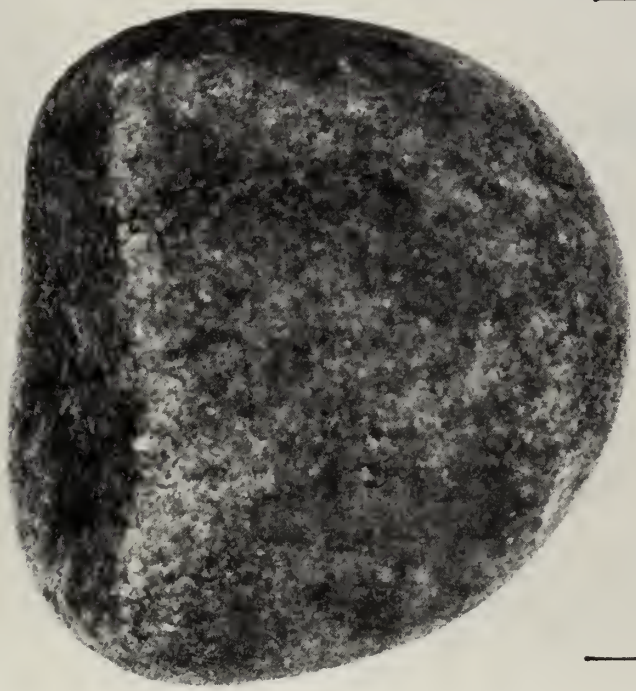
A. CLASS 1 HANDSTONE 26 CK 1482

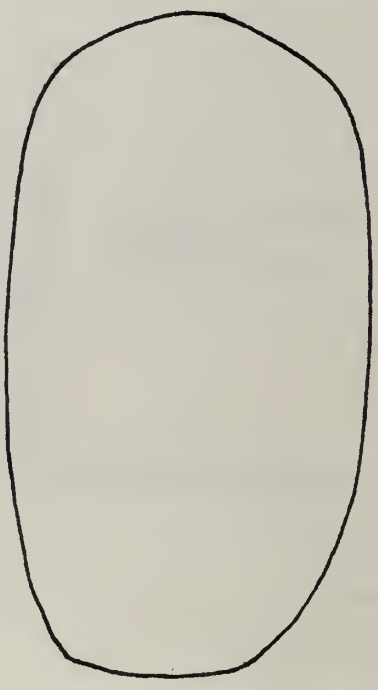




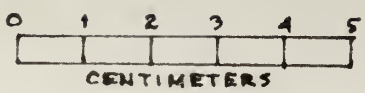
60-70 CM

B. CLASS 2 HANDSTONE 26 CK1481





SURFACE



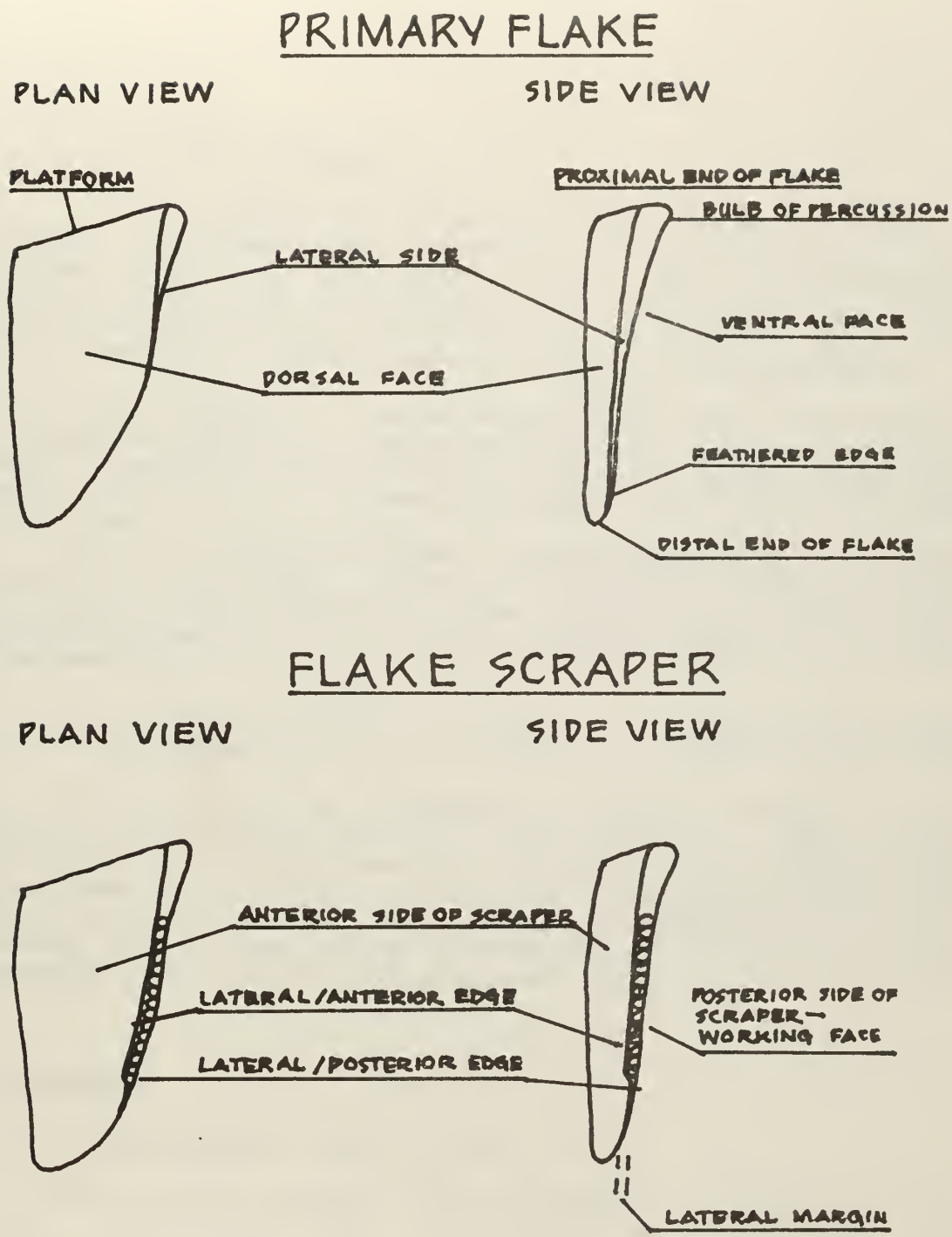


FIGURE 20
ILLUSTRATION OF SEVERAL TERMS USED
IN THE DISCUSSION OF STONE TOOLS

2. Grounstone Slabs

a. Class 1: Unshaped Groundstone Slabs (7 examples: 7 elements/not shown). These consist of two complete and five fractured slabs. They are unifacially formed on naturally flat boulders. The shallow, ovate working surfaces may be slightly to heavily used. The outline shapes of the boulders are ovate to subrectangular.

b. Class 2: Pecked Groundstone Slabs (8 examples: 8 elements/not shown). The eight specimens include only one nearly complete groundstone slab. The latter example is ovate in plan view. Its ovate working face has been only lightly used.

All are unshaped slabs, distinguished solely by their pecked working face. They are unifacially formed on naturally flat boulders. The working surface may be slightly to heavily used. Outline shapes range from ovate to subrectangular.

3. Abrading Stone (1 example: 1 element/Figure 18:B and Table 9).

The artifact is irregular in shape, roughly subrectangular in plan view and in cross section. Thin, long striations extend over one flat surface. The striations are juxtaposed in a parallel pattern, diagonal across its subrectangular face. Wear patterns suggest sharpening or faceting of a pointed or sharp edged object. This was done repeatedly over the face of the small stone.

X. CERAMICS

A. Description (Tables 10 and 11)

The ceramic sample from 26CK1481 is composed of 207 sherds. These have been identified as Moapa Gray (63 sherds), Logandale Gray (24 sherds), North Creek Gray (23 sherds), Lower Virgin Gray (51 sherds), Tizon Brown (13 sherds), Brownware with False Corrugation (20 sherds), St. George Black-on-Gray (8 sherds), Parker Buff (2 sherds), North Creek Corrugated (1 sherd), and Parker Red-on-Buff (2 sherds). Table 10 illustrates the distribution of these types in 10 cm. levels. The depositional sequence of a ceramic type is apparent through the sherd percentage

increase to its peak (largest percentage within a level) as compared with the actual sherd counts, to be certain the peak has not been adversely affected by a miniscule sherd count of a particular level (Jenkins 1981).

Table 10 illustrates two important facts about the ceramics from 26CK1481. First, there seems to be evidence in both the actual sherd counts and the percentage of sherds per level that supports the proposed Lower Virgin Gray/North Creek Gray distinction suggested by Jenkins (1981). In Table 10, Lower Virgin Gray increases with depth to 20 cm. and North Creek Gray essentially decreases with depth. This suggests that Lower Virgin Gray may be somewhat older than North Creek Gray and should probably continue to be separated from it. Second, the large percentage of such "early" types as Moapa Gray, Logandale Gray and Lower Virgin Gray and the small number of later types such as North Creek Corrugated suggests that the site was primarily used during the earlier periods of Anasazi occupation. The sample is small, however, and skewing of data is possible whenever this is the case.

The ceramic sample from 26CK1482 is composed of 54 sherds. These have been identified as 7 sherds of Moapa Gray, 13 sherds of North Creek Gray, 12 sherds of Logandale Gray, 5 sherds of Tizon Brown and 17 sherds of Brownware with False Corrugation. Table 11 illustrates the distribution of these types in 10 cm. levels.

The small size of the sample severely hampers an accurate interpretation of the ceramic record. At least two items of interest and possible importance are worth noting. First, there is a complete lack of both Lower Virgin Gray and North Creek Corrugated. Each of these types were widely distributed throughout the local areas of Anasazi occupation during their peak periods of use. There is no apparent reason for their absence at 26CK1482 unless the site was used only occasionally or not at all during these periods. Second, the Brownware with False Corrugation on the exterior has a much larger representation at 26CK1482 than at 26CK1481 as does North Creek Gray. This may be a matter of happenstance based on the small size of the sample, or it could indicate a chronological association of these two types.

TABLE 10: CERAMIC DISTRIBUTION CHART FOR 26CK1481

	0-10	10-20	20-30	30-40	40-50	Totals
Moapa Gray	19 30.2%	24 28.1%	11 17.5%	9 14.3%		63
Logandale Gray	3 12.5%	11 45.8%	3 12.3%	3 12.3%	4 16.8%	24
North Creek Gray	7 30.4%	11 47.8%	4 17.4%	0	1 4.0%	23
Lower Virgin Gray	12 23.5%	24 47.1%	12 23.5%	3 5.9%	0	51
Tizon Brown	6 46.2%	1 7.7%	3 23.1%	3 23.1%	0	13
Brownware with False Corrugation	5 25.0%	14 70.0%	1 5.0%	0	0	20
St. George Black-on-Gray	3 37.0%	1 13.5%	2 25.0%	2 25.0%	0	8
Parker Buff	0	2 100.00%	0	0	0	2
North Creek Corrugated	1 100.00%	0	0	0	0	1
Parker Red-on-Buff	1 50.0%	0	1 50.0%	0	0	2
Totals	57	88	37	11	5	207
Sherd Count/ % Per Level	27.54%	42.51%	17.89%	9.66%	2.42%	100%

TABLE 11: CERAMIC DISTRIBUTION CHART FOR 26CK1482

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	110-120	Totals
Moapa Grey	0	1 14.3	2 28.6	1 14.3	0	1 14.3	0	1 14.3	1 14.3	7
North Creek Gray	2 15.4	1 7.7	5 38.5	1 7.7	2 15.4	1 7.7	1 7.7	0	0	13
Logandale Gray	0	4 34%	3 25	0	0	1 8%	3 25	1 8%	0	12
Tizon Brown	1 20%	0	2 40%	2 40%	0	0	0	0	0	5
Brown-ware with "False" Corrugation	1 5.9	2 11.8	7 41.2	6 35.3	0	1 5.9	0	0	0	17
Totals	4	8	19	10	2	4	4	2	1	54
Number of sherds/% Per Level	7	15	35	19	3.8	7	7	3.8	2	

B. Conclusions

The ceramic data from these two rockshelters are tenuous, based on the small size of the samples. several interesting items are apparent in this study and these may assist in continued ceramic studies in the are.

First, the method of studying ceramic depositional sequences proposed by Jenkins (1981) seems to receive support from the results of tables 10 and 11. This could assist future cermic research and general site analysis of the many non-stratified sties found in this area. Tables 10 and 11 seem to indicate a temporal difference between Lower Virgin Gray and North Creek Gray. If this is the case, then 26CK1481 may have been more widely used during the early stages of Puebloan occupation (Basket Maker III and Pueblo I) than 26CK1482. This is not firmly established, however, since the sample from 26CK1482 is composed of only 54 sherds and there are no corrugated sherds which would indicated a temporal difference between Lower Virgin Gray and North Creek Gray. If this is the case, then 26CK1481 may have been more widely used during the early stages of Puebloan occupation (Basket Maker III and Pueblo I) than 26CK1482. This is not firmly established, however, since the sample from 26CK1482 is composed of only 54 sherds and there are nor corrugated sherds which would indicate a Pueblo II or III occupation. Finally, Brownware with False Corrugation on the exterior is found in both of these shelters and has also been found in the California Wash to the west. This type could be an undescribed ware of the Yuman peoples or, similarly, and undescribed Paiute ware. Positive identification will have to await further research in this area.

Basically an early occupation is suggested by the ceramic evidence for both of these rockshelters. This deposit is probably overlain and partially mixed with a later Paiute occupation.

Sherd types identified as Tizon Brown, Parker Buff and Parker Red-on-Buff are considered lower Colorado River wares. At 26CK1481 17 of the 207 sherds, or 8%, and at 26CK1482 5 of the 54, or 9%, are recorded as Lower Colorado River wares. The interpretation of these wares can either imply trade contact with Yuman people or their actual presence in the valley.

Basically an early occupation is suggested by the ceramic evidence for both of these rockshelters. This deposit is probably overlain and partially mixed with a later Paiute occupation.

Basically an early occupation is suggested by the ceramic evidence for both of these rockshelters. This deposit is probably overlain and partially mixed with a later Paiute occupation.

XI. OTHER ARTIFACTS (Tables 30 and 31)

A. Shell (not shown). One fragment of an opalescent shell was collected, possibly originating from abalone (Haliotis sp.). No attributes could be noted to ascertain its prior function, though it could represent a fragment of an aboriginal ornament.

B. Bone Artifact (not shown). A pointed tip fragment from a mammal bone possesses a ground and smoothed surface, possibly representing a tip of bone awl.

C. Red Ochre (not shown). A small fragment of red ochre was recovered from one of the sites and may represent an importation to the site for use as pigment.

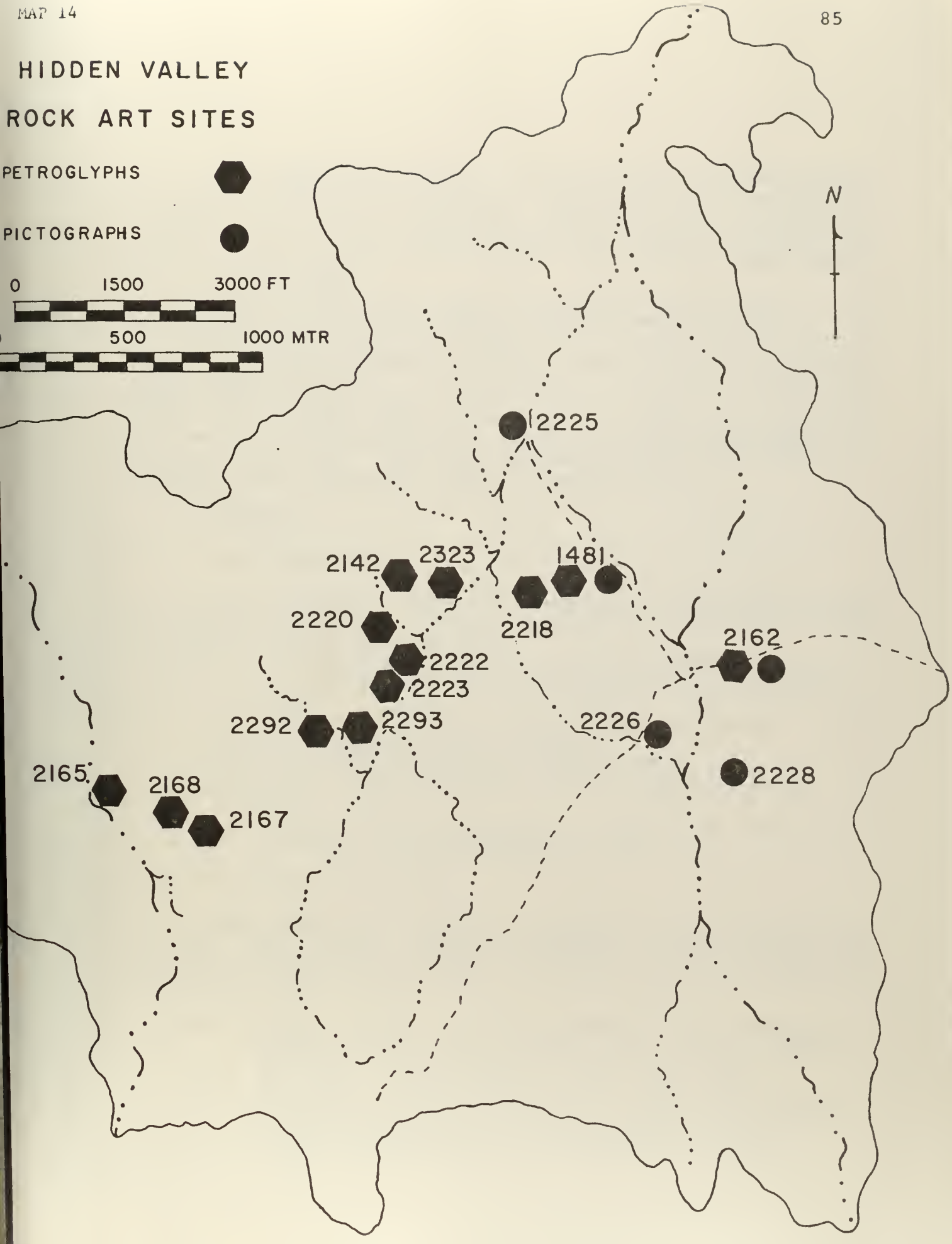
D. Historic (not shown). The historic materials recovered from the sites consist of glass, metal, leather and plastic finds. The majority of the items are glass and rusted iron fragments, for a total of 110 pieces. A fragment of a shoe, several 22 caliber casings, a copper rivet, and blue plastic bead fragments were also found.

XII. ROCK ART

A. Overview of Design Elements (Figures 21-26 and Table 12)

Rock art elements occur at both sites, though the elements are indistinct at 26CK1482 and were not corporated in the study. These consisted of barely noticeable red smudges. For comparative purposes, associated rock art sites are brought into the description, including site 26CK2226, located near 26CK1482 and 26CK2142, 2218, 2223, 2323 located near site 1481 (Map 14). Illustrations of all the elements are included.

Site 26CK1481 contains 21 distinguishable grouped and individual rock art symbols. Nine are pictographs (painted forms) executed in red pigment. Two of these (Figure 22,


HIDDEN VALLEY
ROCK ART SITES
PETROGLYPHS
PICTOGRAPHS
0
1500
3000 FT
500
1000 MTR
N
2225
2142
2323
1481
2218
2220
2222
2223
2162
2292
2293
2226
2165
2168
2167
2228

The designs are placed in erosional hollows or pockets in the rear wall and overhang of the shelter. The sandstone surface exhibits a deep brown patination which is severely eroded. The erosional pockets exhibit a lighter patination layer, heaviest at the base and grading to an unpatinated surface at the top.

The area encompassing the designs begins 30 centimeters above ground level, extends upward 3 meters, and is approximately 2.5 meters wide. Below 30 centimeters height, the rock surface is eroded away, forming a narrow shelf beneath the rock art panel. Several fragmentary pecked line figures are noticeable in the heavily patinated area immediately above the ledge. Within the erosional hollows are a few faded paint smudges probably representing design elements. Neither fragmentary pecked nor painted smudges offer sufficient form for description.

1. 26CK1481

a. Figure 21:1-9.

The abstract forms are executed in red pigment which is faded but distinct. With the exception of numbers 2 and 3, all are linear compositions.

1.) A pattern of 8 vertical and intersecting lines.
2.) Two solid painted ovals connected by a vertical line.
3.) Two parallel rows of five connected circles.
4.) An irregular outline square.
5 and 6.) Three parallel vertical lines.
7.) Three nested chevrons connected by a vertical line.
8 and 9.) Two rake patterns - a horizontal bar with pendant vertical parallel lines.

b. Figure 22:10-14.

The abstract forms are pecked both solid and in outline. The pecking technique produced a broad, deep line or solid area which remain distinct despite wind born abrasion of the surface.

10.) Three parallel vertical lines in black pigment appear above a solid pecked circle with a central dot and a solid pecked curved line form.
11.) A group of three forms - a vertical sinuous curved line and two adjacent irregularly circular outlined forms. One is bisected by vertical line, the other has interior crossed lines.

12.) A group of four forms. A vertical row of 10 dots is surmounted by two short parallel lines in red pigment. Below and to the left of the dots is a solid pecked line figure above a pattern of vertical and horizontal lines with circle and dot elements.
13.) Two parallel forms consisting of two outlined circles bisected by a vertical line.
14.) An outlined face or mask with irregular circular facial features.

c. Figure 23:15-21.

The abstract forms are pecked solid and in outline.

15.) A rake form with a horizontal bar above.
16, 17, 18.) Three irregular solid pecked forms.
19.) A group of three forms. Two parallel slanting vertical forms each consisting of three solid pecked circular areas connected by a thick vertical line. To the right of these is an outlined arch with connecting basal and interior horizontal bars.
20.) A group of three forms. Two parallel slanting vertical curved line figures solidly pecked above a concentric circle figure.
21.) A rake pattern, a horizontal line with 15 pendant vertical parallel lines.

2. 26CK2323 (Near 26CK1481)

a. Figure 24:22.

22.) 26CK2323 is a pecked panel in a sheltered alcove in the box canyon, approximately 200 meters west of 26CK1481. A complex curvilinear pattern is placed to the right. On the left is a skeletal form with the head showing tear streaked eyes. A second, detached, head also has facial features with tear streaks. Two centrally located forms in the panel resemble the vertical line and circle forms 2, 13 and 19 from 26CK1481.

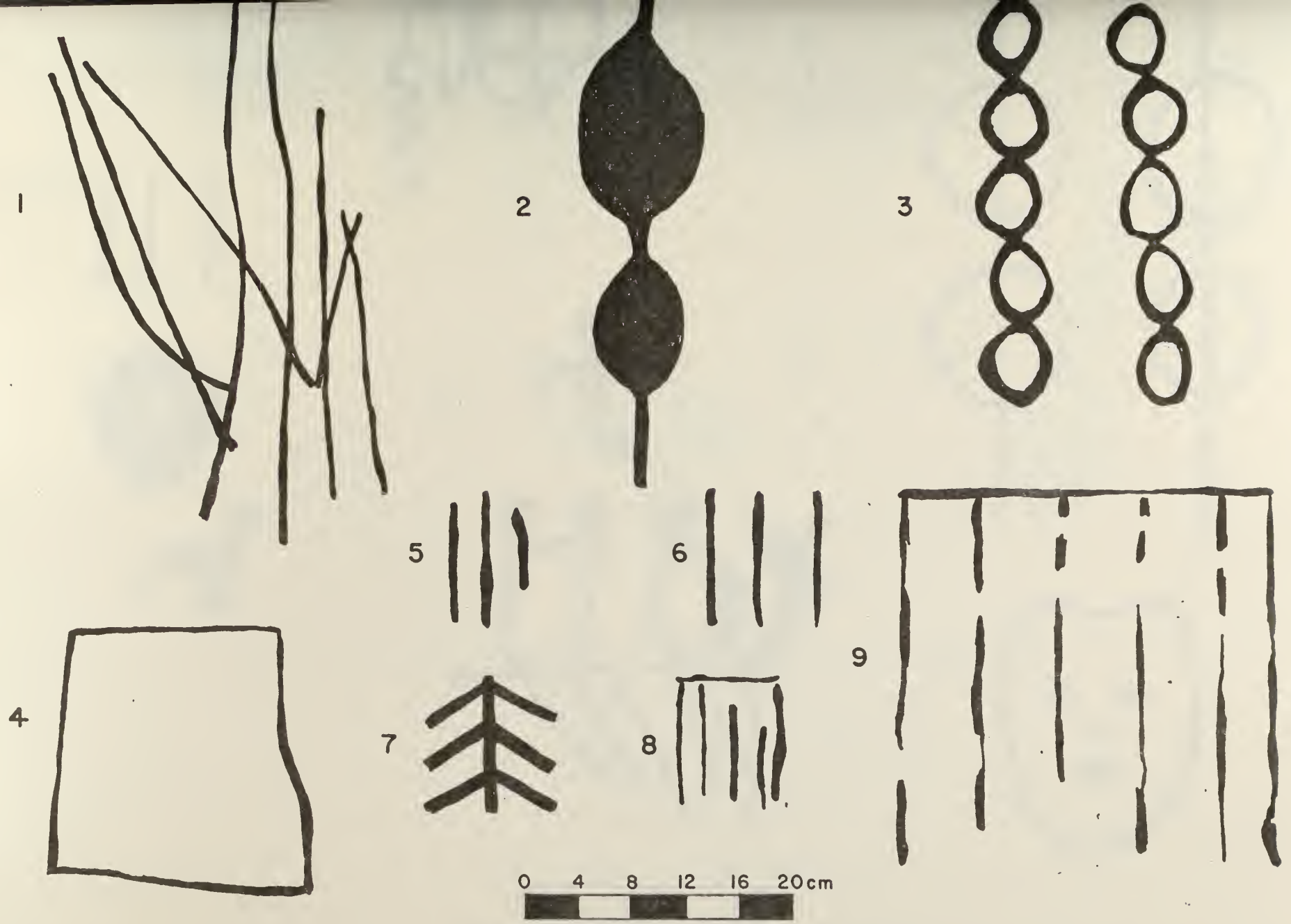


Figure 21: Rock Art Elements, 26CK1481

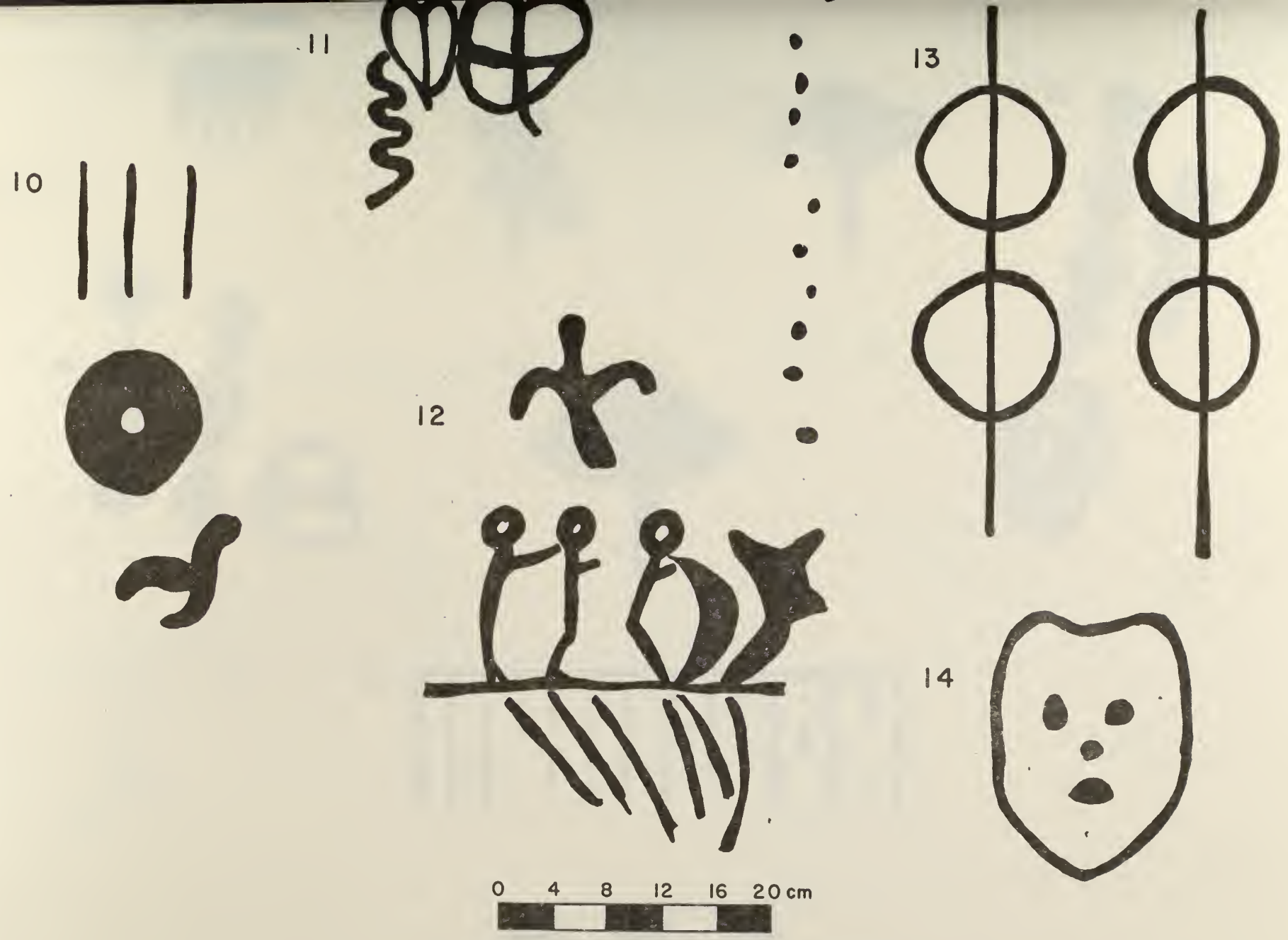


Figure 22: Rock Art Elements, 26CK1481

Figure 23: Rock Art Elements, 26CK1481

Figure 24: Rock Art Elements, 26CK2323 and 26CK2142 (near 26CK1481)

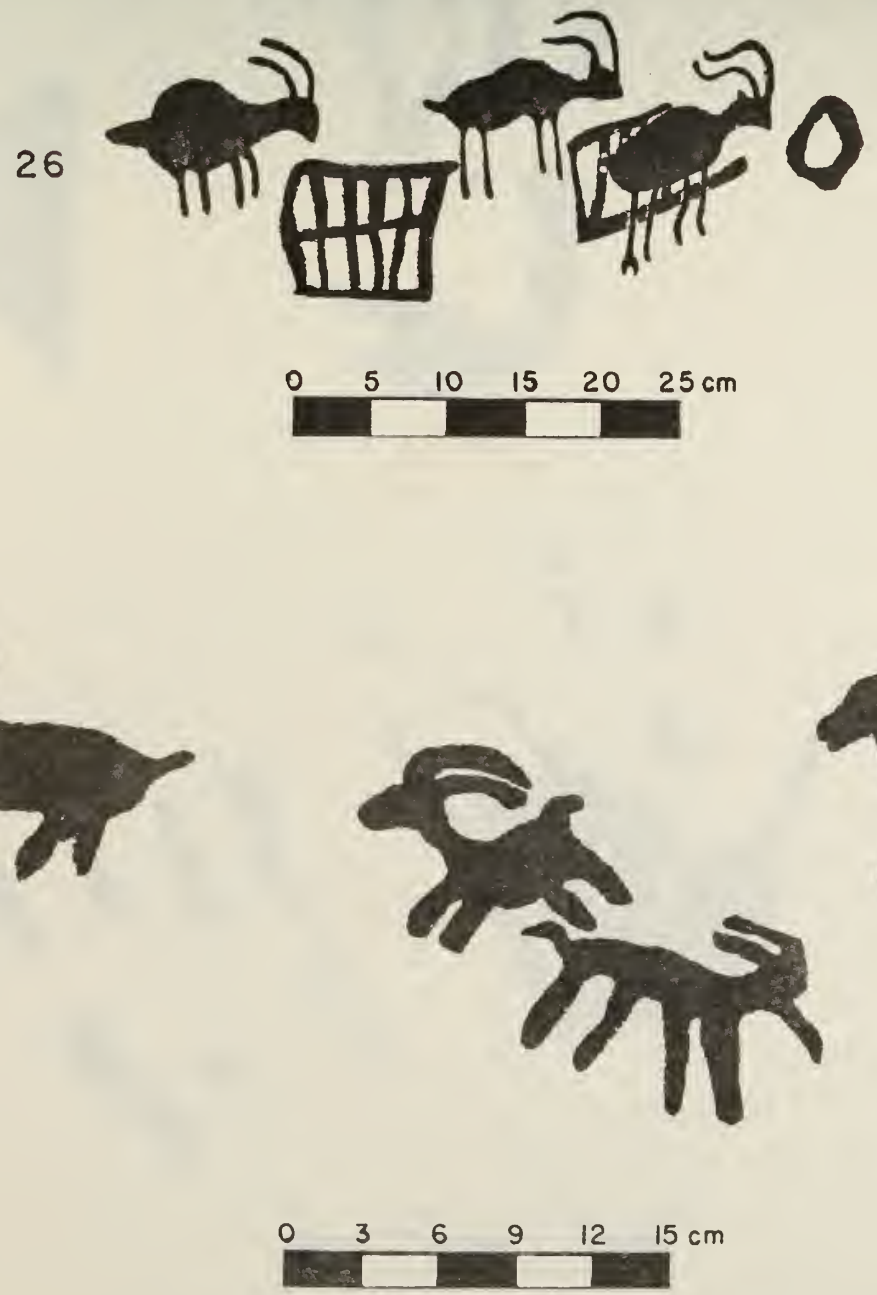


Figure 25: Rock Art Elements
26CK2223 and 26CK2218 (near 26CL1481)

Figure 26: Rock Art Elements, 26CK226
(near 26CK1482)

The panel surface is moderately heavily patinated and slightly eroded. The designs are distinct. Below and to the right is a group of three solidly pecked forms. The outline edges are obscured by erosion.

3. 26CK2142 (Near 26CK1481)

a. Figure 24:23, 24, 25.

26CK2142, on the south wall of the box canyon to the west of 26CK1481. The forms are pecked into the black-brown patination 2 meters above ground level over an excavated area assumed to be a historic water catchment basin.

23.) Two stick figure anthropomorphs exhibiting a slight degree of repatination.
24.) An abstract design of three vertical curved lines connected by a horizontal curved line.
25.) Three abstract curved line forms. Above these, the patinated rock is eroded away. At the upper edge, heavily repatinated curvilinear forms are too indistinct.

4. 26CK2223 (Near 26CK1481)

a. Figure 25:26.

26.) 26CK2223, a section of a severely eroded panel in the sandstone formation forming the west wall of a wash approximately 700 meters southwest of 26CK1481. It is one of the two mountain sheep depictions recorded in Hidden Valley. The three sheep are superimposed over rectilinear grid forms. These show a greater degree of repatination than the sheep.

5. 26CK2218 (Near 26CK1481)

a. Figure 25:27.

27.) 26CK2218, located on a sandstone outcrop approximately 50 meters west of 26CK1481. Four mountain sheep are solidly pecked in dark brown patination. The outlines are slightly eroded.

6. 26CK2226 (Near 26CK1482)

a. Figure 26:28-34.

The site is located in an alcove 3 meters above ground level in a sandstone outcrop 30 meters south of 26CK1482 and overlooks that site. The figures are placed along the rear wall in an area from 1 to 2 meters above floor level and 3 meters wide. All are executed in red pigment except number 28 which is in black pigment. The forms are placed on the unpatinated rough wall surface. Numerous red pigment smudges are too indistinct to distinguish patterns, and all coloration is faded.

28.) An abstract form consisting of a vertical line with bilateral triangles attached at the apex. This form resembles the Hopi Butterfly clan symbol described by Colton and Colton (1931:32).

29, 30, 34.) Right hand prints, palms and digits distinct.

33.) Left hand print, palm and digits distinct.

31, 32.) These two forms are presumed to be partial hand prints.

B. Descriptive Analysis

Hidden Valley contains 17 rock art sites. Twelve have petroglyphs (designs pecked into rock surfaces), three have pictographs (designs painted on rock surfaces), and two have both petroglyphs and pictographs. Sites 26CK1481 and 26CK2226, the latter near site 26CK1482, are discussed in relation to environmental and stylistic variables as components of a rock art unit which consists of all seventeen sites. This unit is then discussed in relation to its regional association utilizing the interpretations of Heizer and Baumhoff (1962), Turner (1963) and Schaafsma (1971).

Rock art styles are relatively dated within a specific site by degrees of repatination and weathering, and by superimposition of individual design elements (Heizer and Baumhoff 1962:285, Turner 1963:14-15). Within the Hidden Valley area, superimposition of elements occurs at only five sites (26CK2222, 2223, 2293, 2165, 2167). Weathering is differential from site to site according to exposure of the panel to erosion mechanisms. Weathering also affects the degree of repatination present in each site. Comparison between sites for common design elements provides an earlier

later approximation further refined for temporal placement by stylistic affiliation and pottery projectile point recovery at 26CK1481 and 26CK1482.

Patina or Desert Varnish is a rock surface coating ranging in color from light brown to a deep purple-black. It is formed primarily from iron and manganese oxides transported in solution and deposited on the rock surface. Preservation of the patina depends on the degree to which it is protected from windborne abrasives and the action of pooled or flowing water. Another factor in preservation is the relative stability of the rock type. Patination does not form on subsurface rock or surfaces not exposed to combined sunlight and moisture (Engel and Sharp 1958:514).

All rock art panels in Hidden Valley are on Aztec Sandstone bedrock formations. It is an unstable rock type which decomposes relatively rapidly into loose sand and platy fragments. Differentially patinated flat surfaces alternate with windborne sand-scoured and scaled off heart rock.

The upper panel at 26CK1481 is partially protected by the ceiling overhang. The lower portion is almost completely eroded away. At 26CK2226 (near 1482), no patination is present. The designs which remain distinct are somewhat protected by their placement within depressions not exposed directly to windborne abrasion. The pictographs at 26CK2226 appear freshly painted. They are placed on the upper surface of erosion hollows with an outside opening approximately 40 centimeters above ground level and are subject to minimal windborne abrasion. At other sites, the degree of erosion seems to depend on whether the panel is shielded by surrounding rock walls or is more open to wind action.

Heizer and Baumhoff (1962) defined Great Basin rock art styles and classified them as abstract curvilinear and abstract rectilinear, representational, scratched, pit-and-groove, Great Basin painted, and Puebloan painted.

1. Curvilinear Abstract: Definitive elements are the circle, concentric circle, chain of circles, sun disc, curvilinear meander (an interlocking maze of curved lines), star or asterisk, and snake. This style is considered the earliest and is dated at 1000 BC to AD 1000 (1962:234). In Nevada, its distribution includes all but the northeast portion of the state (1962:92).
2. Rectilinear Abstract: Definitive elements are dots, rectangular grid, bird tracks, rake, and cross-hatching. This style is considered to have

a later initial date (AD 1), and a more restricted distribution in the western and southern portions of Nevada (1962:93).

3. Representational: Abstract elements are combined with mountain sheep, quadrupeds, the foot or hand, horned humans, and the Kachina or mask. It is placed with rectilinear abstract at AD 1-1500. Distribution is limited to Clark and Lincoln Counties in Nevada (1962:93).
4. Pit-and-Groove: Considered to be older than other styles because where it appears in association it is usually more heavily repatinated. Pits or cupules are ground or pecked into horizontal or vertical rock surfaces, usually in random patterns. Shallow grooved lines may, but not always, connect the pits. The temporal range is given at 5000-3000 BC. Minor's 1975 study in southern California discusses ethnographic evidence that indicated pit-and-groove was produced in conjunction with California Indian rituals and thus continues into historic time (1975:2). Distribution in Nevada is limited to 6 sites in the north central part of the state and 6 sites in Clark County. A possibly pit-and-groove site is located approximately 15 meters north of 26CK1481.
5. Great Basin Painted: Designs painted in red or white in parallel lines or circles. It is considered late in time, AD 1000-1500. Distribution of this style includes all but the northeast portion of the state (Heizer and Baumhoff 1962:203).
6. Puebloan Painted: Limited to the area of southern Nevada known to have had Puebloan occupation. The distinguishing feature is the Kachina figure (1962:203).
7. Scratched Style: Shallow lines incised to form straight lines, sun figures or cross hatching. Distribution is scattered in Nevada. It is dated AD 1000-1500 (1962:203).

Turner's (1963) study of the Glen Canyon region defines stylistic development attributed to Anasazi Basketmaker-Pueblo through Paiute-Navajo-European times. The prehistoric styles were determined on the basis of pottery in associated sites and differential weathering and superimposition (1963:39). He concluded that an early style dated from an estimated 100 BC to AD 1050 developed into a

distinctive Puebloan style florescense from AD 1050-1200. The early styles were distributed from the southwest northward and westward to include most of the Great Basin (1963:39). After AD 1200, with the proposed Anasazi withdrawal to the Hopi mesas, a less technically precise style with a diminished inventory of design elements appears. Turner attributes this and later styles to Shoshone-Paiute and Navajo occupations replacing the Anasazi. Southern Nevada rock art at Lost City and the Valley of Fire are included in the areal distribution of the three early styles.

Schaafsma (1971) separates Utah rock art into stylistically defined areas associated with the Fremont Culture. The southern region is divided into western and eastern Virgin-Kayenta Puebloan styles which she considers to have influenced the Fremont style (1971:112). Western Virgin-Kayenta includes southeastern Nevada and southwestern Utah. Lost City and Valley of Fire rock art is defined as consisting "largely of small solidly carved representational figures and abstract elements" (1971:117). It differs from Eastern Virgin-Kayenta in that "there is a noticeable reduction in subject matter; hunting scenes, stick figure lizards, and flute players appear less commonly, and there is a complete lack of Puebloan pottery designs", and Great Basin abstract styles are more common (1971:117).

Photographs in the work of Heizer and Baumhoff (1962), Turner (1963) and Schaafmsa (1971) were compared with a personal (E. Green) collection for Muddy Mountains and Valley of Fire sites. Hidden Valley petroglyph sites contain 25 of the 58 Great Basin abstract and representational elements enumerated in Appendix G for Nevada rock art sites by Heizer and Baumhoff (1962:381-392). Twenty-eight of these are present in Valley of Fire sites. As described by the three authors, the design elements essentially consist of:

1. Wavy lines, single or combined sinuous curved lines.
2. Ticked lines or rakes, horizontal lines with pendant parallel lines (also present in pictographs).
3. Dots or lines of dots.
4. Dot and circle, an outline circle with central pecked dot.
5. Circle (also present in pictographs).
6. Concentric circles.

7. Bisected circle.
8. Spoked concentric circle.
9. Tailed circle, a circle with attached line (also present in pictographs).
10. Connected circles, two or more circles connected by a straight line (also present in pictographs).
11. Rectangular grid, rectangular shape with internal horizontal and/or vertical lines.
12. Cross.
13. Bird tracks.
14. Chain of circles, 3 or more circles in vertical pattern (also present in pictographs).
15. Sun disc, circle with radiating rays.
16. Dumbell, a pair of connected circles pecked over the entire area (also present in pictographs).
17. Oval grid, curved outline with interior pecked lines.
18. Maze, a pattern of intermingled curved lines.
19. Parallel straight lines (also present in pictographs).
20. Lozenge chain-series of 2 or more lozenges arranged point to point (see Fig. 23, nos. 19, 20).
21. Lizard.
22. Mountain sheep.
23. Sheep horns.
24. Snake.
25. Foot or paw.
26. Hand (also present in pictographs).
27. Human stick figure.

All forms not included above are placed in the category "curvilinear abstract forms". No specific definition is given, nor possible. Such elements would include the amorphous elements in Fig. 22, nos. 10, 12, Fig. 23, nos. 16, 17, 18, Fig. 24, nos. 24, 25.

Within this stylistic definition, Hidden Valley petroglyphs correlated well with Valley of Fire sites. The pecking technique is also comparable. Deeply pecked broad lines form the designs. Where surface abrasion is uniform, the outlines remain distinct while spalling of the rock surface obliterates details.

The pictographs fit the definition for the Great Basin painted style since the definitive element for the Puebloan Painted style is the Kachina figure. No identifiable Kachina figures occur in the Hidden Valley sites, comparable to the Puebloan Kachina figure.

TABLE 12

ROCK ART SITES BY LOCATION TYPE, SUPERIMPOSITION OF ELEMENTS, DEGREE OF REPATINATION AND DEGREE OF EROSION

Site # 26CK	petroglyphs	pictographs	location type				superimposition	degree repatination				degree of erosion	
			habitation	water source	wash wall	boulder outcrop		light	moderate	complete	slight	moderate	severe
1481	X	X	X					X			X		X
2218	X					X		X			X		
2323	X				X			X			X		
2142	X			X				X			X		
2226		X	X									X	
2162	X	X	X					X			X		
2228		X	X					X			X		
2225		X			X			X			X		
2220	X		X					X			X		
2222	X				X		X	X	X				X
2223	X				X		X	X	X				X
2292	X		X						X	X	X		
2293	X			X			X	X					X
2294	X		X					X					X
2165	X				X		X	X		X	X		
2167	X		X				X		X			X	
2168	X				X				X				X
TOTAL	14	5	8	2	6	1	5	13	5	2	10	2	6

Pottery and diagnostic projectile points recovered from 26CK1481 and 26CK1482 generally bear out a Basketmaker III-Pueblo II-Paiute sequence for Hidden Valley. Additionally, Lower Colorado Buffware pottery may indicate Yuman presence. A possible pre-pottery occupation layer below the pottery levels suggests Basketmaker II or earlier occupation prior to AD 700 when pottery was introduced to the area as shown at Lost City (Shutler 1961:29).

No clearcut temporal sequence is evident from the diagnostic projectile points. Elko, Rose Springs, Desert Side-Notched and Triangular points are apparently intermixed in approximately equal numbers. Referring to Shutler's description and plates illustrating Lost City lithics, the sequence at Hidden Valley compares at least with the ± AD 500-1150 Anasazi and later Paiute occupation.

Heizer and Baumhoff associate Great Basin rock art with rituals connected with Big Game Hunting. They found petroglyphs to be predominately placed near game watering places, trails, hunting blinds, and places suitable for surrounds or ambush and seldom near habitation sites (1962: 219, 239). The depiction of game, principally the mountain sheep supports that conclusion. In Hidden Valley, while hunting was logically a part of the resource exploitation, rock art is not devoted to that aspect (Table 12). Eight rock art sites are positively associated with habitation sites, two with water sources, and seven are on wash walls or boulders located within 100 meters or less of a habitation site. For all seventeen sites, two depict mountain sheep, 26CK2218 and 26CK2223. Rock art sites elsewhere in the Muddy Mountains and at the Valley of Fire do contain numbers of diverse sheep depictions.

Ethnographic accounts detail ceremonial aspect of rock art production. Shasta Indians performed basic ceremonies involving pit-and-groove production. Pomo women who desired to conceive children also pecked pits into boulders (Minor 1975:2). The Luiseno painted pictographs as part of the girl's puberty rites as did Columbia-Fraser Plateau groups (Heizer and Baumhoff 1962:228).

The Hopi practiced ritual ceremony at sacred places along travel routes. An account of a 1912 Hopi salt gathering expedition to the Grand Canyon tells of a young man's initiation trip. He was instructed in the proper prayer offerings and ritual observations to be made at sacred places. One requirement was to carve his clan symbol on a rock covered with other clan symbols (Titiev 1937:245). A similar rock is described by the Coltons (1931:35). A Hopi informant identified many of the clan symbols. Among these are seven found in Hidden Valley:

1. Butterfly, 26CK2226, the form illustrated in Fig. 26, no. 28.
2. Kachina, 26CK1481, Fig. 22, no. 14.
3. Crow, bird tracks, 26CK2222, 2223, 2292.
4. Lizards, stick figure with bent arms and legs, also snake, 26CK2165, 2167, 2293, 2292
5. Moon, circle and dot, 26CK1481, 2222, 2223, 2165, Fig. 22, nos. 10, 12.
6. Red ant, a vertical line connecting two circles, 26CK1481, 2323, 2293, 2292, 2165, Fig. 21, no. 2, Fig. 22, no. 13.

Hidden Valley rock art is associated with habitation sites, or close to them, and with perennial water sources. For this area, rock art would not appear to be primarily associated with hunting magic, since only two mountain sheep depictions were recorded. Ethnographic accounts offer the possibility that some of the forms may be Hopi clan symbols.

Reference to previous works indicated that Hidden Valley rock art is a Western Virgin-Kayenta style influenced by the Great Basin abstract, representational, and painted styles. A possible pit-and-groove panel is located near 26CK1481.

Pottery and diagnostic projectile points from 26CK1481 and 1482 suggest a temporal sequence from at least ca. AD 700-1150 for Anasazi Basketmaker and Pueblo occupation. Paiute and Yuman occupation is possibly contemporaneous or follows the Anasazi. A prepottery level may indicate earlier Basketmaker presence. Chronological definition for rock art styles in this areas suggests the earlier abstract curvilinear rock art panels are 2000-3000 years old. Later abstract, representational, and painted styles are dated to AD 1300 (Turner 1963:1) and AD 1500 (Heizer and Baumhoff 1962:234).

XIII. HEARTHS

A total of nine rock features are discussed in this section, eight of which are aboriginal. The ninth feature is a recent hearth, bearing historic artifacts and will not be considered further.

Of the other eight, one is a general rock strewn layer adjacent to two hearths, Features 1 and 2, site 26CK1481. It was termed "Feature 3" and was exposed in order to illustrate the characteristic rock associations within the midden. These appear related to roasting pit activities.

For the purpose of discussion, the six remaining rock features fall within three hearth types. The seventh rock feature was not fully excavated.

A. Type A: Conically-Shaped, Slab-Lined (1 example/ Map 4 and Figure 5). The feature measures approximately one meter in external diameter and is 40 centimeters deep from rim to its internal base. Slabs are aligned, dipping downware into the conical base, in many instances overlapping other slabs. It is located at site 26CK1481, Feature 1.

B. Type B: Disc-Shaped, Slab-Lined (3 examples/ Maps 4, 5 and 7; Figures 5 and 7). These measure from 60 to 115 centimeters wide from rim to rim and 15 to 25 centimeters deep from rim to internal base. Slabs are formally arranged with one face up, forming a shallow concavity and usually not overlapping other slabs. Two of these are found at site 26CK1481, Features 2 and 4, while the other was located at 26CK1482, Feature 2.

C. Type C: Round, Cobble Strewn (2 examples/Maps 6, 8, 12 and 13; Figures 6 and 8). The features were identified on top of the surface of both sites. They were first recognized by an irregular occurrence of surface cobbles and a centrally depressed area. After excavation, a rough, boulder strewn base was identified 40 to 45 centimeters below the original surface. These features measure from 4 to 5 meters in diameter. One each of this feature type was excavated at 26CK1481 and 26CK1482.

The unexcavated hearth feature located at site 26CK1482, measures 4 meters across (Map 9). It contains a rubble of five cracked stone and boulders arranged with a higher outer rim and central area, separated by a lower depressed ring: the high inner central area measures 1 1/2 meters wide. It was left *in situ* for future research.

XIV. SOIL SAMPLES

A total of seven soil samples were processed for seed identification, 3 samples from site 26CK1481 and 4 samples from site 26CK1482. Seeds collected were unburnt and most were so fragmentary that they were not useful for indentification. The number of seeds obtained from the flotation samples was small, less than 1% of the bouyant debris. The

Seed Identification Manual (Martin and Barkley 1961) was consulted for methodology and identification.

At site 26Ck1481, none of the samples taken within the site and surrounding Features 1 and 5 contained recognizable seeds. One sample taken from the NW/NE extension of Pit 1 above Feature 2 was examined and produced seeds of Encelia, Aristida, Plagiobothrys, Sporobolus, Erodium, Eriogonum, Cryptantha and possibly Malva. The last Malva is usually associated with rural areas, introduced as a weed along disturbed locations. However, it was not intact, making the identification of dubious value.

At site 26CK1482, samples were retrieved from within the site and surrounding Features 2 and 3. Feature 2 contained flat seed pieces resembling a gourd (Cucurbita), one seed with knife-like margins (Cryptantha), and one diamond-shaped seed reminiscent of Anulocaulis. Feature 3 contained seeds of grasses (possibly an Eriogonum species). Based on the cursory examination of seeds from both sites, the material reflects the autochthonous vegetation.

XV. BONE ANALYSIS

In the field, bone recovery during excavation involved placing all the bone materials from each level in bags marked by site, pit and depth. The faunal materials recovered during the test-pitting of these two sites were then weighted and catalogued in the laboratory prior to analysis. A total of 492 bone fragments were recovered from 26CK1481 and 1,571 from 26CK1482. The combined total for both sites is 2,063. Table 13 includes the totals for each pit in site 26CK1481, and Table 14 for 26CK1482, by identified taxon, bone element and fragments that were charred.

The faunal bones were for the most part extremely fragmentary so that a major portion of the material was unidentifiable. In part, this fragmentary nature may relate to ground disturbance by vandalism at 26CK1481, or possibly to the continual re-use of the roasting pit areas, which would fragment the bone material. Both sites included roasting pit complexes which were a part of the test excavations. All test pits were one meter square, and the eight pits excavated in site 26CK1481 averaged 50 cm. in depth as did the Pit 1 extensions. The five pits excavated in site 26CK1482 averaged 100 to 110 cm. in depth. The greater depth of site 26CK1482 is interpreted as an indication of a longer use period over time. This is

reflected in the amounts of faunal bone recovered from the two sites, as site 26CK1482 contained 76% of the total recovered bone, while site 26CK1481 had only 24%, despite the larger number of test pits excavated.

In the initial laboratory analysis the bone was identified in 18-20 different categories representing faunal classes and bone elements. For comparative purposes these categories were grouped into eleven major divisions to assist in the interpretation of the faunal data. Within these major categories 60% of the bone in both sites consisted of unidentifiable fragments, and an additional 10%-11% in each site was unidentifiable long bone. Consequently, a total of over 70% of the recovered faunal materials was unidentifi- able. Although roasting pit complexes occurred in both sites, charred bone frequencies are 7% for site 26CK1481 and only 5% for 26CK1482.

Artiodactyl long bone had frequency of 16% in site 26CK1481 and 10% in 26CK1482. A comparable, although smaller percent frequency, occurs when comparing percentages of lagomorph bone within the two sites, with site 26CK1481 showing 10% and site 26CK1482 showing 2%. Both sites have a low frequency for tortoise bone remains, .05%-1%, but site 26CK1481 also contained only .02% frequency for tortoise plastron or carapace fragments. Site 26CK1482 has a frequency of tortoise plastron or carapace fragments of 16%, which is a higher percent frequency of occurrence than for any category other than the unidentifiable bone (Table 14, note percent frequency totals).

These two sites contrast significantly with the analysis of the faunal materials from Bird Springs which Dansie (1981) found in a sufficiently well preserved state that bone element and genus could be identified. She even was able to attempt an estimation of the number of individuals, since many of the bones were complete. When total percent frequency of occurrence is compared there are similarities, particularly between lagomorph and artiodactyl frequencies. The chuckwalla frequency differs greatly as Bird Springs has a much larger number of occurrences of chuckwalla and Hidden Valley contained only a single fragmented mandible in site 26CK1482.

Although Dansie (1981) does not distinguish between tortoise bone and carapace or plastron, the comparative totals are similar: 24% for Bird Springs, and 19 to 20% for Hidden Valley, if both sites are combined and tortoise bone percentages are added to the carapace plastron percentages. The problem with counting fragmentary carapace and plastron pieces is that there is no way to estimate the number of individuals represented.

TABLE 13

Bone Taxon, Element and Charred Fragments
Analyzed from 26CK1481

26CK1481	Unidentified	Unidentified long bone and ribs	Reptile long bone	Chuckwalla mandible	Tortoise bone	Tortoise carapace or plastron	Rodent bone	Lagomorph bone	Artiodact. cranial bone	Artiodact. post-cranial bone	Totals	Total Charred
Pit 1 NW	10	1	0	0	0	1	0	4	0	0	16	0
%	.63	.06				.06		.25			.04	0
Pit 1 NE	56	19	0	0	0	1	0	7	0	14	97	6
%	.58	.20				.01		.07		.14	.20	.06
Pit 1 SW	35	4	0	0	3	0	0	18	0	4	64	9
%	.55	.06			.05			.28		.06	.13	.14
Pit 1 SE	88	8	0	0	0	3	0	5	0	19	123	12
%	.72	.07				.02		.04		.15	.25	.10
Pit 2 N	24	2	0	0	1	0	0	4	0	3	34	0
%	.70	.06			.03			.12		.09	.07	0
Pit 2 S	37	0	2	0	0	4	0	6	0	25	74	2
%	.50		.03			.05		.08		.34	.15	.03
Pit 3 N	12	5	0	0	0	0	0	1	0	8	26	1
%	.46	.19						.04		.31	.05	.04
Pit 3 S	20	13	1	0	0	1	0	4	1	4	44	3
%	.46	.30	.02			.02		.09	.02	.09	.09	.70
Pit 1 SW Ext.	10	0	0	0	0	1	0	1	0	0	12	0
%	.84					.08		.08			0	0
Feature 1 Ext.	2	0	0	0	0	0	0	0	0	0	2	0
	1.00										.02	0
Totals by Elements	294	52	3	0	4	11	0	50	1	77	492	33
% Totals	.60	.11	.005	0	.005	.02	0	.10	.002	.16		.07

TABLE 14

Bone Taxon, Elements and Charred Fragments
Analyzed from 26CK1482

26CK1482	Unidentified	unidentified long bone and ribs	Reptile long bone	Chuckwalla mandible	Tortoise bone	Tortoise carapace or plastron	Rodent bone	lagomorph bone	Artiodactyl Cranial bone	Artiodactl post-cranial bone	Totals by pit	Total charred
Pit 1 NW	355	25	1	0	1	87	1	7	0	50	527	18
%	.67	.05	.002		.002	.17	.002	.01		.09	.34	.03
Pit 1 NE	208	56	0	0	6	38	2	4	2	16	332	20
%	.63	.17			.02	.12	.001	.01	.001	.05	.21	.06
Pit 1 SW	199	38	4	0	4	50	0	14	8	40	357	26
%	.56	.11	.01		.01	.14		.04	.02	.11	.23	.07
Pit SE	63	8	0	1	1	30	0	6	0	27	136	5
%	.46	.06		.01	.01	.22		.04		.20	.09	.04
Pit 2	112	31	1	0	5	45	0	6	1	18	219	4
%	.51	.41	.01		.02	.21		.03	.01	.07	.13	.02
Totals by Element	937	158	6	1	17	250	3	37	11	151	1571	73
% Totals	.60	.10	.004	.0006	.01	.16	.002	.02	.007	.10		.05

Although the bone from Bird Springs was not directly associated with roasting pits there was a high frequency of charred material, whereas in Hidden Valley sites, the amount of charred bone was negligible despite the presence of roasting pits. The site at Bird Springs is associated with permanent water and was occupied over a long time period, while Hidden Valley is devoid of permanent water and could only have been occupied seasonally. This is reflected in the types and amounts of recovered faunal materials, which in Hidden Valley include mountain sheep, jack rabbit, cotton tail, and other smaller rodents, rarely chuckwalla, some non-identified reptile bone and a high frequency of tortoise (found in 26CK1482), probably associated with the roasting pit complex. There is a great difference between the Bird Springs site and the Hidden Valley sites in cultural content as well as the size of the faunal materials recovered during the test excavations. The Bird Springs total were nearly three times as great as that for the Hidden Valley sites. In addition the Hidden Valley materials were extremely fragmentary and eroded.

XVI. DATA COMPILATION

Material yield from the two sites has been tabled and charted (Tables 15-31 and Charts 1-4). The presentations of these data are not intended to demonstrate statistical significance, but rather to serve the purpose of describing general trends within each site. The samples were too small to provide intersite or statistically valid comparisons on a detailed level.

Tables 20-31 were utilized to provide some standard for comparing the data. Also, this enabled a reduction of the total yield of materials to an average yield, since the amount of soils screened at upper levels in each site was greater than at lower levels. In providing for general analysis, site 26CK1481 was arbitrarily grouped into material yield from an upper 0-30 cm. to a lower 30-50 cm. level while site 26CK1482 was also arbitrarily grouped into an upper 0-70 cm., into a lower 70-140 cm. level, as well as into 0-40 cm., 40-70 cm., 70-100- cm. and 100-140 cm. levels (Tables 15 to 18). From these, the actual amount of soils excavated was divided into the total yield of cultural materials retrieved, resulting in an average yield taken in any 1 cubic meter of soil per grouped level. These standardized averages produce a clearer distinction of yield differences from upper to lower levels in each site.

Utilizing the same method of average yield, stone tool elements were next totalled by site, level and activity category (Tables 20 and 21) to provide percent frequency of occurrence per grouped level (Tables 22-25). Tables 22 and 23 show the average percent for each activity category per cubic meter by grouped level. Tables 24 and 25, also computed from Tables 20 and 21, derived the percent difference within each activity category between adjacent group levels, but did not include comparative differences below 100 cm., site 26CK1481. The latter was not included in the comparison as the sample was quite small. However, a general, upper to lower level nominal comparison may be found in Chart 1, showing the percentage differences, above and below 30 cm., site 26CK1481, and above and below 70 cm., site 26CK1481.

Other Tables, show the actual distribution of types of diagnostic artifacts and materials retrieved from excavation by level. These include Projectile points, Tables 26 and 27; Pottery, Tables 28 and 29; and, Historic Artifacts, Tables 30 and 31.

Charts 1A, B and C illustrate the percent of each material category, bone, flakes, sherds and stone tools from the upper and lower levels of the two sites. Charts 2 through 4 were prepared based on total yield rather than average yield. These are graphic illustrations showing the cumulative percent of points and pottery by levels. Also, bar graphs show the presence of diagnostic points by level (Chart 3).

Activity categories were created to group similar functional elements in order to generalize possible activity changes from upper to lower levels. Activity categories had their artifactual element correlations and included: 1) scraping-scrapers; 2) cutting-knives; 3) drilling-drills; 4) hunting-points; 5) battering-hammerstones; 6) core related-cores; and, 7) other-chopper (1) and gravers (2). Activities associated with grinding were limited in the study, and the lithic analysis was focused on flaked stone tools.

Finally, Pit 4, 26CK1481 and Pit 3, 26CK1481 were excluded from the total and average yield in this analysis. No cultural materials occurred in these excavation units.

XVII. INTRASITE DISTRIBUTIONS AND CONCLUSIONS

A. 26CK1481

The site contained a limited yield of bone materials, but a large amount of lithic flake waste, stone tool elements, and pottery. This shallow site showed about a 47% increase from lower to upper levels in stone tool elements, comparing average yields. Although the data could not demonstrate significance, a somewhat similar increase is noted for bone and waste flakes, though pottery increased more dramatically (Chart 1A). Intermixture of site materials is indicated by the types of diagnostic artifacts distributed in both upper and lower levels (Charts 2, 3, and 4). However, considering the in situ nature of the hearth features and associated soils, intermixture was not caused by recent cultural activities. Both rodent burrowing and prehistoric occupation may have been factors in intermixing the cultural materials.

Groundstone tools were common on top of the surface of the site, and several were also found during excavation. Two handstones indicate multi-use activities including both grinding and battering elements.

Other stone tools are represented by an 18% occurrence of two activity elements, suggesting both re-use or multi-use. The majority of these binary functions occur with 74% of the scrapers, about evenly divided into additional cutting and core-related activities. From level to level, cutting elements predominated, while hunting, scraping, core-related, drilling, and battering elements occurred in respectively decreasing order (Table 22).

The distribution of projectile points placed the majority within the first 30 centimeters (Table 26 and Chart 2 and 3). At this level, Elko and Rose Spring Series, Desert Side Notched and triangular-shaped comprised most of the identifiable point classes, though several of these occurred below this level. The smaller yield of diagnostic projectile points below the 30 cm. level may have resulted from the smaller amount of cubic meters processed, roughly 1 cubic meter less than the 0-30 cm. level. In fact, if average yield is computed and compared with other activity categories, a slightly larger diagnostic projectile point percentage may occur at the 30-50 cm. level than above it. The relative absence of bone materials, in both upper and lower level for total and average yield, does little to demonstrate activity association, particularly in regards to site 26CK1482.

Numerous pottery sheds were retrieved from the site, with 83% frequency of occurrence for the Virgin Series ware (Chart 4). The majority of all sherds were taken from the first 20 cm. level (67%) where Virgin Gray was intermixed with small amounts of Tizon Brown, Lower Coloradan, and a number of Brownware with False Corrugation sherds.

Features located within the site suggested roasting pit activities were patterned into three types: A.) slab lined, conical-shaped; B.) slab lined, disc-shaped; and, C.) irregular boulder-lined, concave-shaped, the latter was located away from the shelter. The remaining roasting pits were composed of the first two types, totaling three features, each associated with large amounts of fist-sized, fire-fractured rock.

B. 26CK1482

Compared to site 26CK1481, the average cubic meter yield produced a larger amount of bone (196% more) by weight, but a smaller amount of waste flakes (54% less), sherds (490% less) and stone tools (82% less). This deeper site maintained a steady increase in total tool elements from lower to upper levels. This represented about a 100% average yield increase, both in the 140-100 to the 100-70 cm. and the 100-70 cm. to the 70-40 cm. levels, with another 51% increase from the 70-40 to the 40-0 cm. level. In overall distribution, the first 70 centimeters contained 78% average yield of stone tool elements. Like 26CK1481, a somewhat similar increase is noted for bone and waste flakes, and again pottery increased dramatically from lower to upper levels (Chart 1, B and C).

Groundstone tools were less common on the site's surface than at 26CK1481 and only one metate fragment was excavated. It was found in association with Feature 2. With respect to both sites, the lack of groundstone tools may have been a function of natural attrition due to former hearth-related activities. Though several other possible groundstone fragments were excavated from both sites, attributes associated with grinding elements were absent, and therefore tool function could not be demonstrated.

The remaining stone tools contained a 15% association of two activity elements, somewhat less than, but nearly comparable to site 26CK1481. Of these binary functions, 69% occurred with scraping tools and represented additional activities almost evenly divided between cutting and core-related functions. Similar to site 26CK1481, cutting activities predominated while hunting, scraping, core-

related, drilling and battering elements occurred in respectively decreasing order (Table 23).

All projectile points, except a tip fragment, occurred above the 100 centimeter level and 80% occurred above 70 centimeters (Tables 27 and Chart 3). In vertical distribution, Elko Series points were more common in the mid and lower levels while the remaining typable points occurred in the mid to upper levels. The total yield of projectile points comparable to site 26CK1481, though average overall yield per cubic meter was 60% less. Bone materials, however, were markedly greater at 26CK1482.

Fewer pottery sherds were recovered than at 26CK1481, and represent one-half fewer types (Table 11 and Chart 4). Of the 54 pottery sherds, 60% were composed of Virgin Series ware while 40% were composed of Tizon and Brownware False Corrugation sherds. Their distribution occurred from surface to a depth of 120 centimeters, but disturbance may account for the few recovered below 70 centimeters in depth. The Tizon and false corrugated wares occurred in the upper most levels, principally above 40 cm. while Moapa, Logandale and North Creek Gray ware sherds tended to occur above 70 cm. As was the case with 26CK1481, the majority of all types occurred above the 30 cm. level.

Of the three hearth features excavated for the site, two were considered to have been aboriginal. One of these, a Type C like the example excavated at site 26CK1481, lacked artifactual content. The remaining hearth feature, a Type B roasting pit, was excavated within the shelter, extending from the 70 cm. level downward and ending at the 100 cm. level. The feature was associated with a large, mixed concentration of fist-sized, fire-fractured rock located above and below the pit. Profile drawings made of the excavation unit also have located an upper and lower distribution of stone surrounding the feature and could indicate an adjacent and deeper hearth feature not exposed in the surrounding soil.

C. Summary

The excavated portions of both sites yielded a similar assemblage of stone tool elements but were not similar in their total and averaged distributions of elements (including groundstone), pottery, bone and waste flakes (by weight). Nor were the two sites comparable in features, depth, disturbance and vertical distributions of artifact type and number. Although the tabled and charted data may not be equated with reliable levels of significance, the descriptive statistics suggest comparable trends between the

two sites in percentages despite their disimilarities (Tables 22-25 and Chart 1:A-D). While intermixture of deposits may have been an important factor in distribution, patterned ratio of elements occur in the upper and lower levels of the two sites, 26CK1481-26CK1482: 40-44% knives, 22-30% points, 12-17% scrapers, 7-15% cores, 3-7% drills and 1-4% hammerstones. This, perhaps, indicates a similar functional assemblage of tool elements for both sites.

Cumulatively, bone (weight), flake waste (weight) and stone tool elements occurred more commonly in the upper levels, respectively about 66%-61%-60%, 26CK1481 and 83%-77%-79%, 26CK1482 and in lower levels, about 35%-40%-40%, 26CK1481 and 17%-23%-21%, 26CK1482 (Chart 1 A-C). The seeming correspondence in percentages between these three groups may also be attributable to intermixture, resulting in homogenity, except that pottery sherds do not equate with this distribution pattern between upper and lower levels at both sites. This distribution may have resulted from a later introduction of pottery, less intermixed with deposits represented by the functional assemblage as a whole. Regardless of the interpretation, overall average material yield increased at both sites from lower to upper levels where the upper limits of feature intrusion have been defined. This occurs at the 30 cm. level, site 26CK1481 and at the 80 cm. level, site 26CK1482. Above these levels, a marked increase is noted in the number and types of artifacts associated with later occupations, primarily pottery and smaller projectile points.

Further, the data suggested an early non-ceramic horizon at site 26CK1482, and, if the Moapa Gray ware sherd is discounted as intrusive, this corresponded to levels below 70-80 cm. At site 26CK1481, 30-50 cm. level, and at site 26CK1482, the 40-80 cm. level, Gray ware pottery predominated and a variety of point styles were introduced. Periods of Anasazi occupation from Basketmaker III to Pueblo II may have become intermixed with upper level occupational debris, including Paiute and Lower Coloradan materials.

XVIII. RECOMMENDATIONS

Test excavations at site 26CK1481 and 1482 suggest an inter-and intra-site patterning of artifactual elements which should be further investigated by additional excavations. The data-base analyzed by this project was too small to demonstrate a functional and temporal significance, not

only within the artifactual collection, but also in terms of their stratigraphic context. In this respect, it is particularly alarming that such preliminary and limited archaeological work has been performed under the BLM aegis and related only to determination of Historic Register eligibility, especially in view of the progressive environmental disturbance through public access and potential development.

If further archaeological and other environmental disturbances in this region are not controlled by denying public access and proposed development, it is recommended that extensive excavations, mitigation and documentation be conducted within Hidden Valley and adjacent areas relevant to its prehistoric setting. This setting should encompass the area including the drainage outlet leading to Colorock Quarry, and the extension through the arroyo leading into the California Wash (a series of prehistoric locations similar in context to the Hidden Valley sites, i.e. with no permanent water sources). Archaeological research within this regional concept would involve the following: 1) When was the earliest development of the rock-lined roasting pit complex and what material elements are present to define the functional and temporal association?; 2) What are the paradigms of the aboriginal use of this botanical and faunal complex?; 3) What other activities may be defined by site content including plant food processing, hunting, tool manufacturing and ceremonial functions?; 4) What types of tool kits are associated and is there an adjacent quarry for lithic sources?; 5) Aside from an apparent Anasazi occupation, were other groups occupying the same site locations and if so, where they concurrent or were they later?; 6) Was there a factor of cultural mobility prevalent through time correlative to a stable but sparse food resource base or was there a changed environment resulting in eventual abandonment of the entire region?; and, 7) Is there evidence of how and for what time-lengths aboriginal groups would have been able to survive within a valley totally lacking in permanent food sources?

The main topics recommended for future research in view of these questions should be critical of this report as well as any other report. Primarily: 1) "Is there a real basis for functional descriptions in an artifactual site collection? This question is essential to the integrity of the Hidden Valley report which is oriented towards standardizing archaeological locale as documented in this report, and prior to any Energy-oriented exploration that could override BLM priorities, total mitigation of all sites within the area is recommended, including test pitting roasting pit complexes and numerous habitation/shelter areas.

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AMOUNT OF MATERIALS PROCESSED AND RECOVERED
AT SITES 26CK1481 (EXCEPT PIT 4) AND
26CK1482 (EXCEPT PIT 3) BY GROUPED LEVELS

TABLE 15 — 26CK1481: TOTAL YIELD

General Levels	Cubic Meters	Bone (Grams)	Flakes (Grams)	Sherds (Numbers)	*Stone Tools (Numbers)	*Elements Added	*Elements Total
0-30 cm	2.225	127	9375	178	125	22	147
30-50 cm	1.25	38	3443	26	47	9	56
Totals	3.475	165	12818	204	172	31	203
*No Provenience		2	60				

TABLE 16 — 26CK1482: TOTAL YIELD

0-40 cm	1.75	338	5850	40	83	9	92
40-70 cm	1.50	324	4765	11	44	9	53
70-100 cm	1.40	63	1956	2	20	4	24
100-140 cm	0.80	31	468	1	5	1	6
Totals	5.45	756	13039	54	152	23	175
*No Provenience		6	105				

TABLE 17 — 26CK1481: AVERAGE YIELD PER CUBIC METER

0-30 cm	1.00	57	4213	80	56	10	66
30-50 cm	1.00	30	2754	21	38	7	45
Totals	1.00	47	3689	59	51	7	58

TABLE 18 — 26CK1482: AVERAGE YIELD PER CUBIC METER

0-40 cm	1.00	193	3343	23	47	5	53
40-70 cm	1.00	216	3177	7	29	6	35
70-100 cm	1.00	45	1397	1	14	3	17
100-140 cm	1.00	39	585	1	6	1	8
0-70 cm	1.00	204	3266	16	39	6	45
70-140 cm	1.00	43	1102	1	11	2	14
Totals	1.00	139	2392	10	28	4	32

TABLE 19 — BOTH SITES: TOTAL AND AVERAGE YIELDS

Total	8.90	921	25857	258	324	54	378
Average	1.00	103	2905	29	36	6	42

*"No Provenience" Artifacts and Grinding Elements Excluded from Totals

POPULATION DISTRIBUTION OF STONE TOOL
ELEMENTS PER EXCAVATION LEVELS

TABLE 20
26CK1481: TOTAL YIELD OF ELEMENTS

GENERAL LEVEL	SCRAPING	CUTTING	OTHER	DRILLING	HUNTING POINTS	BATTERING	CORE RELATED	TOTAL	GRINDING*
0-20 cm	13	43	1 Graving	4	21	4	9	95	2 Metate Fragm
20-30 cm	6	22	1 Chopping	4	11		8	52	1 Mano
30-40 cm	5	15		3	5	2	4	34	
40-50 cm	3	9		1	9			22	
TOTAL	27	89	2	12	46	6	21	203	3
No. Prov.*		3							11 Metate Fragm 1 Mano

* "No Provenience" and Groundstone artifacts are excluded

POPULATION DISTRIBUTION OF STONE TOOL
ELEMENTS PER EXCAVATION LEVELS

TABLE 21
26CK1482: TOTAL YIELD OF ELEMENTS

GENERAL LEVEL	SCRAPING	CUTTING	OTHER	DRILLING	POINTS	BATTERING	CORE RELATED	TOTAL	GRINDING*
0-20 cm	6	18	1 Graving	1	6		3	35	
20-30 cm	2	10		1	9	1	4	27	
30-40 cm	3	12		1	8	1	5	30	1 Abrader
40-50 cm	3	7			4		6	20	
50-60 cm	2	5		2	5		2	16	
60-70 cm	2	9		1	4		1	17	1 Mano
70-80 cm	2	5			2		1	10	1 Metate Fragme
80-90 cm	1	1			2		2	6	
90-100 cm	1	3			4			8	
100-140 cm	1	3			1	1		6	
TOTAL	23	73	1	6	45	3	24	175	3
No. Prov.*		3		1	1				1 Metate Fragme

* "No Provenience" and Groundstone artifacts are excluded

PERCENT REPRESENTATION OF
ELEMENTS BY GROUPED LEVEL

TABLE 22

26CK1481: AVERAGE YIELD OF ELEMENTS PER CUBIC METER (Except Pit 4)

GROUPED LEVELS	SCRAPING	CUTTING	OTHER	DRILLING	HUNTING	BATTERING	CORE RELATED	TOTAL
0-30 cm	12.9	44.2	1.4	5.4	21.8	2.7	11.6	100%
30-50 cm	14.3	42.9		7.1	25.0	3.6	7.1	100%

TABLE 23

26CK1482: AVERAGE YIELD OF ELEMENTS PER CUBIC METER (Except Pit 3)

GROUPED LEVELS	SCRAPING	CUTTING	OTHER	DRILLING	HUNTING	BATTERING	CORE RELATED	TOTAL
0-40 cm	12.0	43.5	1.1	3.3	25.0	2.2	13.0	100.1%
40-70 cm	13.2	39.6		5.7	24.5		17.0	100%
70-100 cm	16.7	37.5			33.3		12.5	100%
100-140 cm	16.7	50.0			16.7	16.7		100.1%
0-70 cm	12.4	42.1	0.1	4.1	24.8	1.4	14.5	99.4%
70-140 cm	16.7	40.0			30.0	3.3	10.0	100%

PERCENT DIFFERENCE IN POPULATIONS OF ELEMENTS
WITHIN ACTIVITIES BETWEEN ADJACENT GROUPED LEVELS

TABLE 24
26CK1481 (Except Pit 4)

GROUPED LEVELS	SCRAPING	CUTTING	OTHER	DRILLING	HUNTING	BATTERING	CORE RELATED	OVERALL
0-30 cm	57.2	60.3	100	53.0	56.2	52.9	70.5	59.6%
30-50 cm	42.8	39.7		47.1	43.8	47.1	29.5	40.4%

TABLE 25
26CK1482 (Except Pit 3)

GROUPED LEVELS	SCRAPING	CUTTING	OTHER	DRILLING	HUNTING	BATTERING	CORE RELATED	OVERALL
0-40 cm	57.4	62.0	100	46.1	60.2	100	53.3	59.8%
40-70 cm	42.6	38.0		53.9	39.8		46.7	40.2%
40-70 cm	62.0	68.5		100	60.3		73.7	67.3%
70-100 cm	38.0	31.5			39.7		26.3	32.7%

POPULATION DISTRIBUTION OF
POINT TYPES PER EXCAVATION LEVELS

TABLE 26: 26CK1481

LEVELS	Gypsum Cave 1	Humboldt 2	Elko Series 3	Rose Springs Series 4	Desert Side Notch 5	Triangular Concave 6A	Triangular St. 6B	Triangular Convex 6	Basal Frags. 7	Tips 8	Mids. 9	TOTAL
		A B	A B C	A B C D	A B C D	1 2	1 2 3	C	A B C			
0-20 cm		1	2	2 1	1 1 1	1		1	1 1	6	2	21
20-30 cm			1	1 1	1	1				2	3	10
30-40 cm		1							1	2	1	5
40-50 cm			1		1	1	1	1	1 1	2		9
0-30 cm		1	3	5	4		3		2	8	5	31
30-50 cm		1	1	0	1		3		3	4	1	14
TOTAL		2	4	5	5		6		5	12	6	45

POPULATION DISTRIBUTION OF
POINT TYPES PER EXCAVATION LEVELS

TABLE 27: 26CK1482

LEVELS	Gypsum Cave 1	Humboldt 2 A B	Elko Series 3 A B C	Rose Springs Series 4 A B C D	Desert Side Notch 5 A B C D	Triangular Concave 6A 1 2	Triangular St. 6B 1 2 3	Triangular Convex 6 C	Basal Frags. 7 A B C	Tips 8	Mids. 9	TOTAL
0-20 cm			1			1	2 1			1		6
20-30 cm				1	2 1	1				3	1	9
30-40 cm			1				1 1			3	2	8
40-50 cm	1									2	1	4
50-60 cm			1		1					2	1	5
60-70 cm			1	1	1	1						4
70-80 cm			1							1		2
80-90 cm						1					1	2
90-100 cm			2 1								1	4
100-110 cm										1		1
100-140 cm												0
0-40 cm			1	2	3		7			7	3	23
40-70 cm	1		2	1	2		1			4	2	13
70-100 cm			4				1			1	2	8
100-140 cm										1		1
0-70 cm	1		3	3	5		8			11	5	36
70-140 cm			4				1			2	2	9
TOTAL	1		7	3	5		9			13	7	45
No Provenience					1							

POPULATION DISTRIBUTION OF
POTTERY TYPES PER EXCAVATION LEVELS

TABLE 28: 26CK1481

LEVEL	MOAPA GRAY	LOGAN-DALE GRAY	NORTH CREEK GRAY	LOWER VIRGIN GRAY	ST. GEORGE B/GRAY	NORTH CREEK CORR.	TIZON BROWN	FALSE CORR.	PARKER BUFF	PARKER R/BUFF	TOTAL	PERCENT	
0-20 cm	39	11	18	36	4	1	5	19	2	1	136	(.67)	Virgin Series 80% Others 20%
20-30 cm	15	5	4	12	2	0	3	1	0	1	43	(.21)	Virgin Series 88% Others 12%
30-40 cm	5	4	0	3	2	0	2				16	(.08)	
40-50 cm	4	4	1								9	(.04)	Virgin Series 100
TOTAL	63	24	23	51	8	1	10	20	2	2	204	100%	
PERCENT	.31	.12	.11	.25	.04	*	.05	.10	.01	.01	100%		

83% 17%

POPULATION DISTRIBUTION OF
POTTERY TYPES PER EXCAVATION LEVELS

TABLE 29: 26CK1482

LEVEL	MOAPA GRAY	LOGAN-DALE GRAY	NORTH CREEK GRAY	LOWER VIRGIN GRAY	ST. GEORGE B/GRAY	NORTH CREEK CORR.	TIZON BROWN	FALSE CORR.	PARKER BUFF	PARKER R/BUFF	TOTAL	PERCENT	
0-20 cm	1	4	3				1	5			14	(.26)	Virgin Series 57 Others 43%
20-30 cm	2	3	4				2	5			16	(.30)	Virgin Series 56 Others 44%
30-40 cm	1		1				2	6			10	(.19)	Virgin Series 20 Others 80%
40-50 cm			2								2	(.04)	
50-60 cm	1	1	2					1			5	(.09)	
60-70 cm		3	1								4	(.07)	
70-80 cm	1	1									2	(.04)	Virgin Series 93 Others 7%
80-110 cm											0		
110-120 cm	1										1	(.02)	
120-140 cm											0		
TOTAL	7	12	13				5	17			54	(101%)	
PERCENT	.13	.22	.24				.9	.31			99%		
	60%						40%						

POPULATION DISTRIBUTION
OF HISTORIC AND OTHER ARTIFACTS

TABLE 30: 26CK1481

LEVEL	22 CALIBER CARTRIDGE	SHOE MATERIAL	GLASS FRAG.	NAIL	COPPER RIVET	CAN OPENER	METAL BOLT	METAL FRAG.
0-20 cm	1		4	2	1	1		106
20-30 cm	1	1	2	1			1	
30-40 cm			1					
40-50 cm			1					
TOTAL	2	1	8	3	1	1	1	106

TABLE 31: 26CK1482

LEVEL	22 CALIBER CARTRIDGE	PLASTIC BEAD	BOTTLE CAP	BOTTLE TOP	METAL FRAG.	ABALONE FRAG.	BONE AWL TIP	RED OCHR
0-10 cm			1					
10-20 cm	1					1		1
20-30 cm					4		1	
30-40 cm								
40-50 cm	1	2		1				
TOTAL	2	2	1	1	4	1	1	1

CHART 1

PERCENT OF EACH MATERIAL CATEGORY RETRIEVED FROM
UPPER AND LOWER LEVELS, FROM TABLES 10 AND 11

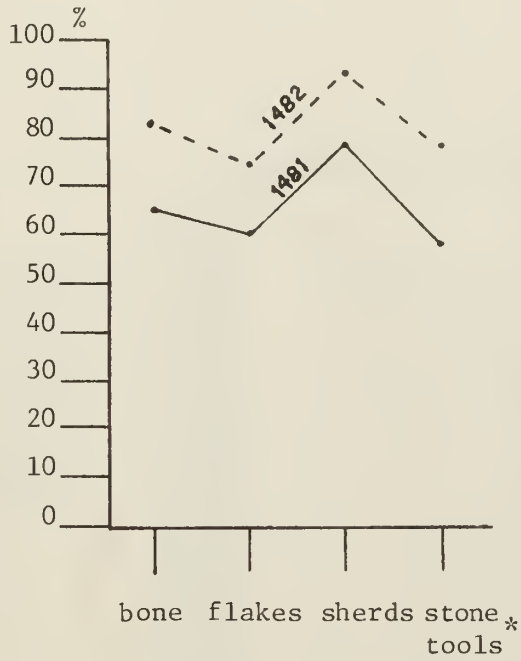
A. 26 CK 1481 +30 cm, -30 cm

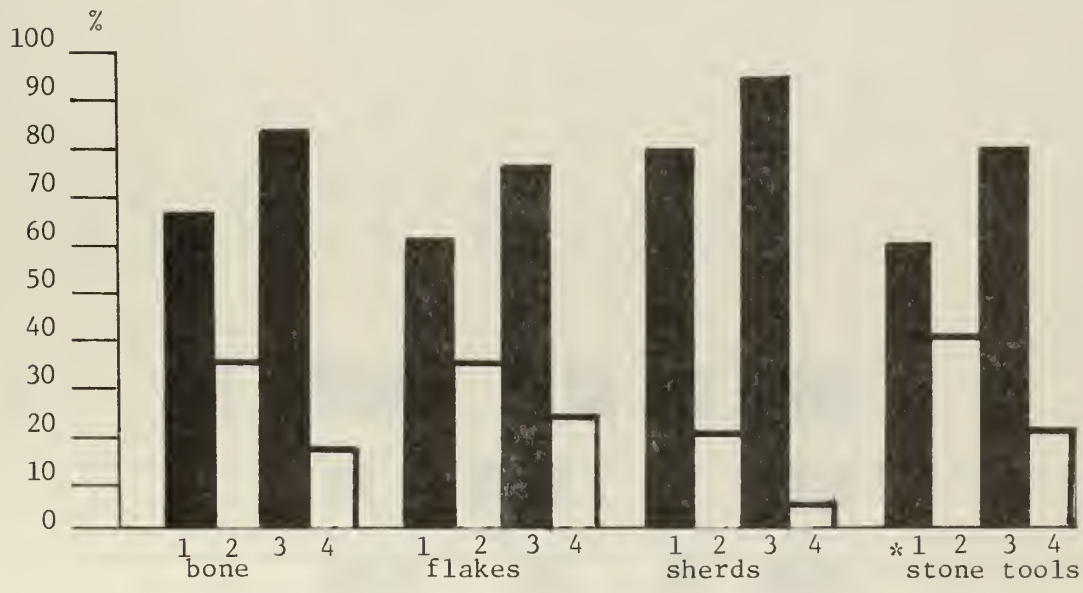
	Level	Bone	Flakes	Sherds	Stone * Tools	Elements
upper	+30	65.5	60.5	79.2	59.6	%
lower	-30	34.5	39.5	20.8	40.4	%

B. 26 CK 1482 +70 cm -70 cm

	Level	Bone	Flakes	Sherds	Stone* Tools	Elmn
upper	+70	83.0	76.7	93.8	79.2	%
lower	-70	17.0	23.3	6.2	20.8	%

C. 26 CK 1482 and
26 CK 1481:
upper levels



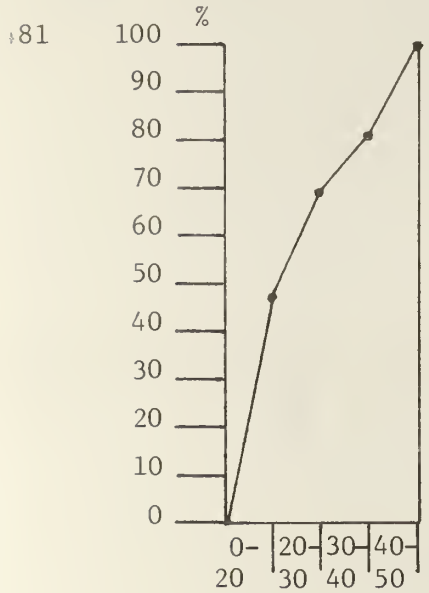


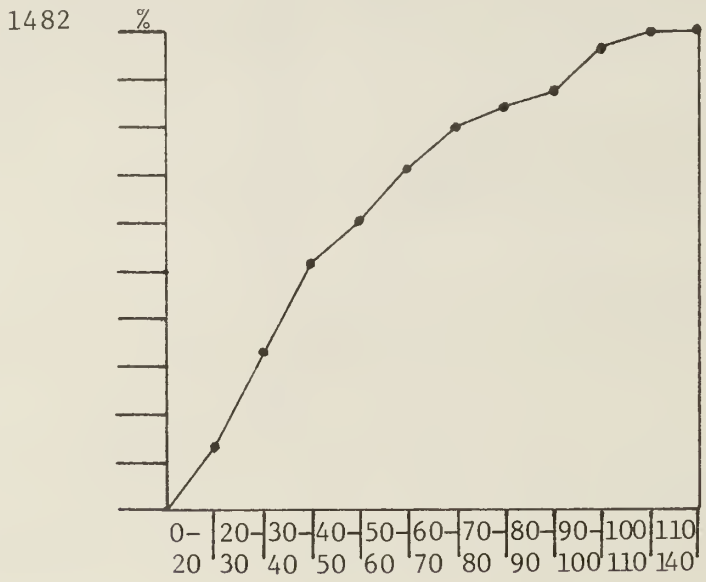
D. 1 = upper level 1481 (0-30cm)
2 = lower level 1481 (30-50 cm)
3 = upper level 1482 (0-70cm)
4 = lower level 1482 (70-140cm)

* "No Provenience" Artifacts and Grinding Elements Excluded from Total.

CHART 2

CUMULATIVE PERCENT, BOTH DIAGNOSTIC POINTS AND FRAGMENTS BY LEVELS*





Level	N	%
0-20	21	46.7
20-30	10	22.2
30-40	5	11.1
40-50	9	20.0

cm

N = 45

Level	N	%
0-20	6	13.3
20-30	9	20.0
30-40	8	17.8
40-50	4	8.9
50-60	5	11.1
60-70	4	8.9
70-80	2	4.4
80-90	2	4.4
90-100	4	8.9
100-110	1	2.2
110-140	0	0.0

cm

N = 45

*"No Provenience" Artifacts Excluded

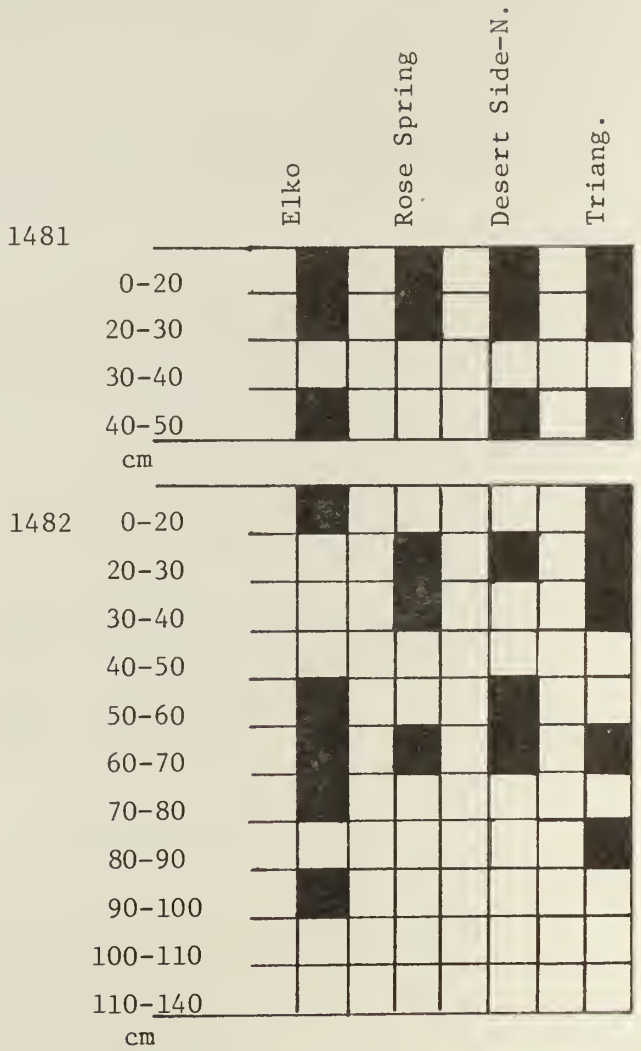
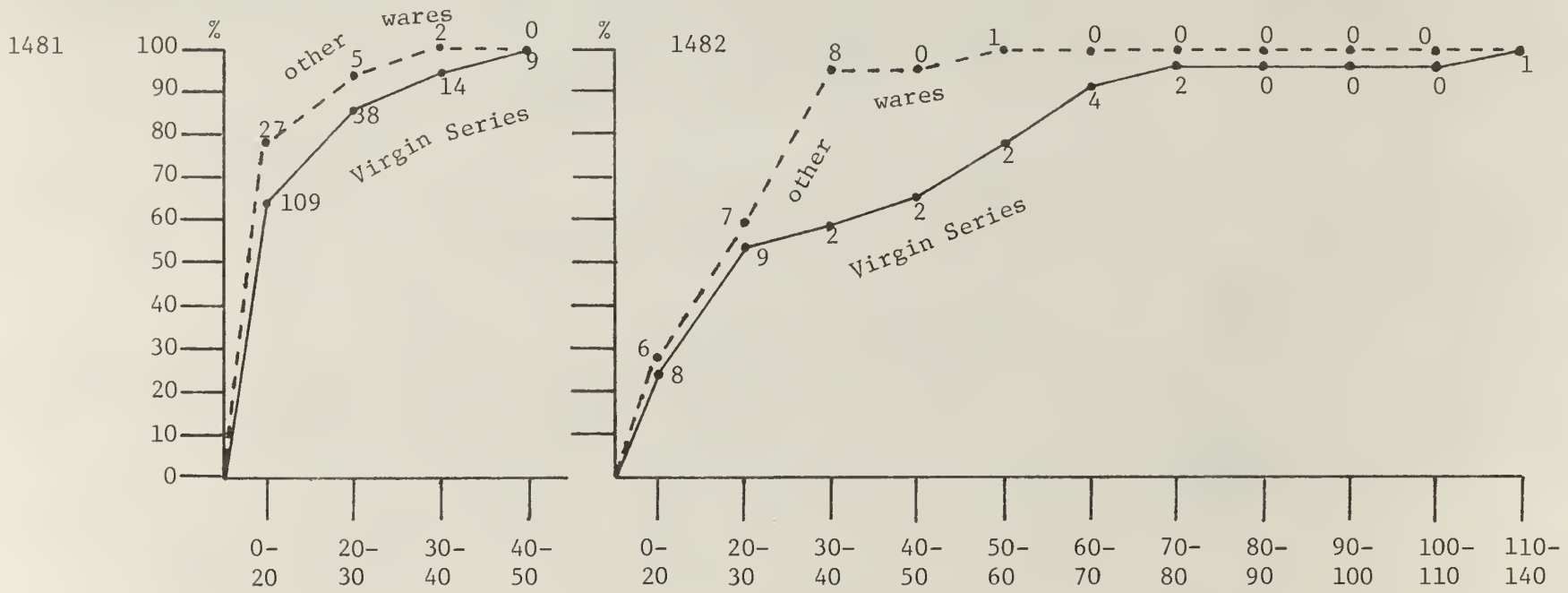


CHART 3

DIAGNOSTIC POINTS, PRESENCE/ABSENCE, BY LEVELS

CHART 4

CUMULATIVE FREQUENCY, PERCENT VIRGIN SERIES AND OTHER WARES BY LEVELS



Level	Virgin Series N	Virgin Series %	Other N	Other %
0-20	109	64.1	27	79.4
20-30	38	22.4	5	14.7
30-40	14	8.2	2	5.9
40-50	9	5.3	0	0.0
cm	N = 170		N = 34	

	Virgin Series N	Virgin Series %	Other N	Other %
0-20	8	25.0	6	27.3
20-30	9	28.1	7	31.8
30-40	2	6.3	8	36.4
40-50	2	6.3	0	0.0
50-60	4	12.5	1	4.5
60-70	4	12.5	0	0.0
70-80	2	6.3	0	0.0
80-90	0	0.0	0	0.0
90-100	0	0.0	0	0.0
100-110	0	0.0	0	0.0
110-140	1	3.1	0	0.0
cm	N = 32		N = 22