APPENDIX 1

TABULATIONS

1. Selected elements in Harrington's ethnological list (1942); also 40 elements shared by all five groups in South Coast Ranges and adjacent southerly areas.

2a. Ethno-zoological word list for San Juan Costanoans of San Benito County, California.

2b. Ethnobotanical word list for San Juan Costanoans of San Benito County, California.

3. Migueleno-Salinan ethnobotanical list of 41 plants, with full ethnographic footnotes.

4a. Migueleno-Salinan ethno-zoological list of 45 vertebrates, with full ethnographic footnotes.

4b. Migueleno-Salinan ethno-zoological list of 6 invertebrates, with full ethnographic footnotes.

5. Fifteen "archaeological" elements in Harrington's list (1942).

6. Monterey elements found elsewhere by Pilling (1955).

7. Monterey sites and collections used by Pilling (1955).

8. Data on 14 individuals in 11 burials at both Willow Creek sites.

9. Data on 25 chipped lithic points from both Willow Creek sites.

10. Data on 15 pestles from Site Mnt-281.

11. Some data on 4 hopper mortars from site Mnt-281.

12. Measurements of 12 pitted stones at Mnt-281 and one at Mnt-282.

13. Some data on stone sinkers from both Willow Creek sites.

14. Measurements of 7 rubbing stones at site Mnt-281.

15. Data on 27 miscellaneous lithic pieces at both Willow Creek sites.

16. Data on 8 hammerstones from site Mnt-282.

17. Identification of 69 nephrite jade hammerstones at site Mnt-281.

18. Identification of 48 non-nephrite hammerstones at site Mnt-281.

19. Weights and locations of 22 chert objects at site Mnt-282.

20. Weights and locations of 40 chert objects at site Mnt-281.

21. Identification of 8 nondescript chopper-scrapers at Mnt-282.

22. Attempt at classifying 79 nondescript chopper-scrapers at Mnt-281.

TABLE 1

SELECTED ELEMENTS IN HARRINGTON'S ETHNOLOGICAL LIST (1942)

	Costano	Salinan	Chumash	Serrano	Gabrielino
Twined boiling baskets	x				
Prominent women shamans	x				
Conical twined carrying basket	x	x			
Tule mats as house-cover		x			
Musical rasp		x			
Menstrual hut		x	x	x	x
Grooved steatite arrow straightener		x	x	x	x
Sewn as well as twined tule mats		x	x	x	x
Hand-held feather ornaments (dance)		x	x	x	x
Coiled basket cap for carrying loads		x	x	x	x
Net-sack carried in hand		?	x	x	x
Boiling baskets are coiled		x	x	x	x
Coiled basket on hopper mortar		x	x	x	x
Urtica (nettles) for string-making		x	x	x	x
Beads measured around hand		x	x	x	x
Earth-covered assembly-house			x		

TABLE 1 (Cont'd.)

	Costano	Salinan	Chumash	Serrano	Gabrielino
Assembly-house with ladder			x		
Scaffold beds			x		
Bird-skin blanket			x		
Spear thrower			x		
Double-ended paddle			x		
Plank boat			x		
Extended burial			x	x	
Grave planks, masts			x	x	
Shell cylinders, treasure			x	x	
Daily sweating			x	x	
Erect headdress (feather)			x	x	
Trees, seed-tracts owned by households			x	x	
Also eagle nests			x	x	
Yellowhammer bands			x	x	
Feather banners on poles			x	x	
Sudatory built against bank			x	x	x
Curved flat throwing-club for small game			x	x	x
Palut-type of feathered net-skirt			x	x	x
Seed beater with parallel warps			x	x	x
Flat-bottomed carrying baskets, coiled			x	x	x
Deer hoof rattles			x	x	x

TABLE 1 (Cont'd.)

	Costano	Salinan	Chumash	Serrano	Gabrielino
Wamkish cult			x	x	x
Mourning ceremony with images burned			x	x	x
U-ladder cradle					x
Bull-roarer in initiation rite					x
Chungichnich and Raven messenger					x
No tobacco offerings					x

40 ELEMENTS SHARED BY ALL 5 GROUPS

Domed living house, thatched, without earth-covering
Bedrock and portable mortars
Slab mortars with asphalted basketry hoppers
Paddles for stirring
Skins dressed by men, with rib-scraper, on inclined post or pole, brains rubbed in, but no smoking
Sinew-backed bow (Fernandeno, but not Gabrielino)
Slings for birds and small game, but not for war
No shields
No armor
Headbands of yellowhammer feathers
Rabbit-fur blankets, with string weft
Men and children naked
Hammock-like carrying net
Twined tule mats
Strings of Apocynum and Aslepias rolled on thigh
Whole Olivella and Olivella disc beads as "money"
Tobacco gathered wild for smoking, also eaten with lime
Cocoon rattle (Costano uncertain) and split-stick rattle
Bull-roarers as a toy
Berdaches
Chief's rank inherited, wealth incidental (but not known for Costano)
Mother is warmed or baked in pit after child-birth
Weather control shamans
Grizzly-bear shamans turn into bears, return to life

TABLE 2a

ETHNO-ZOOLOGICAL WORD LIST FOR SAN JUAN COSTANOANS
OF SAN BENITO COUNTY, CALIF.[1]

Mammals

Bear (Ursus) - Or'-desh (O-res, JPH)
Male bear - Or'des trar'-dis
Female bear - Or'des moo-koor-ă-ma
Cub bear - Wak-se-te-nun-se-te-muk
Grizzly bear (Ursus horribilis) - Or'desh
Black grizzly bear - Or'res mor-tres min

Racoon (Procyon) - Shash'-shă-ran

Mountain lion (Felis hippolestes) - Tan'-mah-lah
Bob-cat (Lynx californicus) - Tor-ro-mah

Gray fox (Urocyon) - Yah"-we (Mephistis, JPH)[2]
Coyote (Canis lestes or ochropus) - Mah'yan (Wak-shyish, JPH)
Big wolf (Canis) - Oom'-mō

Big skunk (Mephistis) - Yah-we
Little spotted skunk (Spilogale) - Dish'-shin

Badger (Paxidea) - Te-koo-ish
Weasel (Putorius) - Ram'-mesh
Mole (Scapanus) - Mor'-rosh (Mor, JPH)

Bat - Shim'te-klah (Wir-es-kan, JPH)

Elk (Cervus) - Te-wo
Blacktail deer (Odocoileus columbianus) - Tō-ō-che,
To-ōch-e, To"-che

Deer - Ar-rā-sā (JPH)
Fawn - Po-koo-ey (Poo-koo-e, JPH)
Antelope (Antilocapra) - Tew-yen

Gray ground squirrel (Citellus beecheyi group) - Eh'-ĕh
Gray tree squirrel (Sciurus fossor) - Choo'-lol, Chu-lōl,
Chew-lol

Pocket gopher (Thomomys) - She-kŏt
Kangaroo rat (Dipdomys or Perodipus) - Tah'chin
White-footed mouse (Peromyscus) - Sho-lon
Wood rat with round tail (Neotoma) - Herdeh, Hear-da, Hē'r-rā
Brush rabbit (Lepus bachmani) - Wer'-ren (Weren, JPH)
Cottontail rabbit (Lepus auduboni) - Your-rā, Your'-deh,
Your'dā, Ur-dā (Yu-ren, JPH)

TABLE 2a (Cont'd.)

Blacktail jack rabbit (Lepus texianus group) - Chā'ish

Horse (Equus) - He-cham-ish
Dog (Canis), male or female - Woo-chak'-kan-nish, Hoo-chuk-kan-ish (Choo-choo, Spanish derivative, JPH)
Pup - Same as above with ending -se-te-ah
Cat (Felis) - Pen-yek

Birds

Golden eagle (Aquila) - She"-re
Redtail hawk (Buteoborealis) - Se'-oo-kert, She'-oo-kert (any big hawk) (Siw-ker, JPH)
Duck hawk (Falco anarum) or
Prarie falcon (Falco maxicanus) - Kok-o-noo
Sparrow hawk (Falco sparverius) - El-lā-min (JPH notes Tehi-lis-min for similar hawk that is larger, and has a longer whitish tail)
California condor (Gymnogyos) - Was-sak-kah
Turkey buzzard (Cathartes) - Tru-e-loon, Troo-e-loon

Great horned owl (Bubo) - Hoo"-mish (Hoo-mis, JPH)
Barn owl (Strix) - Chah'-he
Screech owl (Megascops) - Koo-too'-e-too
Burrowing owl (Steotyto) - Wā"-che-che
Pigmy owl (Glaucidium) - Wash'-wash'-e-yah

Raven (Corvus corax) - Kah-kah-re
Crow (Corvus americanus) - Sard'-i, Sar'di (Sa-ri, JPH)
Magpie (Pica) - Ho'-mo'-yah (At-tratr, JPH)

Crested jay (Cyanocitta) - Ki-ki
California jay (Aphelocoma) - Ah'-sh-sheet

Valley quail (Lophortyx) - Hex-ren (Hek-sen, JPH)
Bandtail pigeon (Columba fasciata) - Ha-rah'-oo
Dove (Zenaiqura) - Hoo-no'-no
Road runner (Geococcyx) - Oo'-e-too-ey, Oo'-too-e
Kingfisher (Ceryle) - Char'-si-wah

Flicker (Colaptes) - Tre-wah'k
California woodpecker (Melanerpes formicivorus bairdi) - Par-rah'-too
Hairy woodpecker (Dryobates villosus) - Che-roo-too

Brewer blackbird (Euphagus cyanocephalus) - Kool-le-an
Redshouldered blackbird (Agelaius) - Koo-le-an'
Meadowlark (Sturnella) - Che'-re-ta-min (Tshi-rit-min, JPH)

TABLE 2a (Cont'd.)

Oriole (Icterus) - Sŏ'k-so'k-e-an
Shrike (Lanius) - Pā'yi
Yellow-breasted chat (Icteria virens) - Moo-shek

Barn swallow (Hirundo) - Pe'-lo-ke-an
Phainopepla (Phainopepla nitens) - Kash'-kan
Bluebird (Sialia) - Ah-shool

Robin (Merula) - Trahp'-trahp'
Mockingbird (Mimus) - (Mu-shyek, JPH)
Humming bird - Moo-mŏ-yah

Mallard (Anas boschas) - Cho'-rŏ'k-tish
Shoveler (Spatula clypeata) - Soo-soo'-soo
Duck - Cho'-rŏk'-tish

Lesser snow goose (Chen hyperborea) - Wah'-ow
Western Canada Goose (Branta canadensis occidentalis) - La-lok, Lah'-lok
Great blue heron (Ardea herodias) - Ar'-de
Coot ("mud-hen") (Fulicia) - Ŭran' (Yŭ-ran', JPH)

Killdeer (Oxyechus vocifera) - Te-we'-took

A bird - Ho-moos (Hoo-moos, JPH)
An egg - Mo'-trā', Mo'-tre

Reptiles and Batrachians

Any snake - Cotre-wah, Ko-tre-wah
Rattlesnake (Crotalus) - Ep-pe
Water snake (Eutaenia) - Le-son-wah
Gopher or bull snake (Pityophis) - Ko'-tre-wah

Small brown lizard (Uta?) - Esh-shā-loo
Scaly lizard (Sceloporus) - Ma-hā-ru-ah
Alligator lizard (Garrhonotus) - (Tu-hir-wis, JPH)

Horned toad (Phrynosoma) - O-shes^{h}-kin
Turtle - Ough-nich-min
Frog (Rana) - Wak'-ka-ratch-men
Toad (Bufo) - (Puk-kuk-min, JPH)

Fishes

Any fish - hoo'ye
Salmon - Hoo"-rah-ka
Sucker - (Kol-kol, JPH)

TABLE 2a (Cont'd.)

Eels - (Hoo-soo, JPH)

Molluscs

Fresh-water mussels - Shi-yel (Shi-yal, JPH)
Ocean black-mussels - (Hah-kow, JPH)
Clams - Hah-kow
Abalone (Haliotis) - Hah-shan[3]
Slug - Tip'-litch-min

Insects and Worms

Grasshopper - Po'-lo-kish
Butterfly - She'o-lo'-lok
Mosquito - Kash'-soop
Fly - Moo'-moor-'re
Small black ant - Posh-koi-min
Yellow jacket - Pe-nan
Bumblebee - Toy'-yo
Flea - Po-or
Tarantula - Koo-tā'-loo

Worms - Kar'-rish

Footnotes for Table 2a

[1] C. Hart Merriam recorded most of the 113 ethnozoological terms. They are in manuscript form at the University of California Archaeological Research Facility in Berkeley.

Merriam collected his data around San Juan in San Benito County on 26 September 1902, 30 May 1903, and 4 May 1904 in his Pacific Coast Region Field Check Lists Note-Book.

In 1921, J.P. Harrington examined the manuscripts about Olhonean-speaking (Hoo-mon-twash) Costanoans. His notes were made on Merriam's original manuscript. These short insertions, revisions and notations are recorded in this tabulation, initialed JPH. Apparently, even Merriam was capable of error, according to Harrington, who noted the term Hah-kow for ocean mussels, correcting Merriam - who noted the term Hah-kow for clams.

[2] Harrington notes that Merriam's term for gray fox may be the native term for big skunk.

TABLE 2a (Cont'd.)

[3] The *Haliotis* species here is probably *rufescens*, but the more precise determination is not made by Merriam or JPH.

TABLE 2b

ETHNOBOTANICAL WORD LIST FOR SAN JUAN COSTANOANS OF SAN BENITO COUNTY, CALIF.[1]

Trees and Shrubs

Redwood (Sequoia semipervirens) - Ho-o-pe, Ho-ōpe

Digger pine (Pinus sabiniana) - (Sak, JPH)
Coulter pine (Pinus coulteri) - (Sak, JPH)
Monterey pine - (Hi-re-ni, JPH)

Douglas fir or spruce (Pseudotsuga) - Rap-pok

Valley oak (Quercus lobata) - Ar'-rek-ky
Valley live oak (Quercus agrifolia) - You-kish, U-kish

Sycamore (Pletanus racemosa) - Mah"-rah
Cottonwood (Populus) - Por'-o-por'-o

Madrone (Arbutus menziesi) - You"-kon, U"-kon

Buckeye (Hippocastanum californicum) - Chat'-te-ah

Willow (Salix sp.) - Tarr"-has-san

Elder (Sambucus glanca) - Cheesh"-nan

Manzanita (Arctostaphylos sp.) - Coo-tush, Chook-toosh
(Choo-toor, JPH)

Blackberry (Rubus vitifolius) - Ā'-ne-nah

Wild rose (Rosa sp.) - Te'-wis

Gooseberry (Ribes sp.) - (Tow-ka'-lee, JPH, with blackberries)

Koso (Toyon) berry (Reteromeles arbutifolia) - Tut'-yo-ne

Yerba Santa (Eriodiction glutinosum) - Poo-koo'-te
Yerba Buena - (Chow-rish-min, JPH)

Poison oak (Rhus diversiloba) - Ne'-sis

Miscellaneous Plants

Broad-leaf milkweed (Asclepias) - Sis'-kah
Indian tobacco (Nicotina attenuata) - Mat'-tret

TABLE 2b (Cont'd.)

Nettle - (Tow-hah-nah, JPH)
Soaproot (Chlorogalum pomeridianum) - See"-al

Big round tule (Scirpus lacustris) - Ro'-kus
Flat tule or cat-tail (Typha latifolia) - Loo'-pe (Ha-leh, JPH)
Sparganium - (Tam'-met', JPH)

Wild oats (Avena sativa) - Oon-oosh-min
Any grass - Hoo'-ne'
Salt grass (Distichlis spicata) - Ah-kis hin'-tel-was (JPH calls this "the people's salt")

Mushrooms - (edible species are Ah-sah-kwah, JPH)

Moss - (Hee-lok, JPH)

Indian whisky (Datura) - Mo'-noi (JPH regards this the name for Jimson Weed or Tolguacha)

Wild grapevine (Vitis californica) - Pā'-lik-kah

Acorn - (Quercus lobata) - Ar"-rik-ky
Acorn - (Quercus agrifolia) - U-kish (same as tree)

Seed - Wah'k-ahm'-mah

Root - He-gō'tr

Pine cone - Sahk'

Leaf - Wahk-trah'-ke Wahk-mah-ra

Footnotes for Table 2b

[1] C. Hart Merriam recorded most of the 41 ethnobotanical terms. Manuscript is at the University of California, Berkeley, Archaeological Research Facility. Merriam's notes were made on 26 September 1902, 30 May 1903, and 4 May 1904, around San Juan in San Benito County, in a Pacific Coast Region Field Check Lists Note-Book. In 1921, J.P. Harrington examined these Olhonean words - and made several of his own notations (initialed JPH).

Most of these notations are ethnographic: gooseberries mixed with blackberries have a term; salt grass was a primary source of domestic salt; edible species of mushrooms have a native name.

TABLE 3

MIGUELENO-SALINAN ETHNOBOTANICAL LIST OF 41 PLANTS[1]

Seven species of oak (acorn):[2]

cxau'wAt' - live oak with spined leaf.
t'io'i - big white tree, white acorn, grows along coast.
paxa'kiL - pointed leaf, big acorn, grows on hills.
p'ā't - tiny serrated leaf, big acorn, Henshaw "white oak".
p'a'pix - serrated leaf, Henshaw "post oak".
cmo' - smooth non-spined leaf.
t'EnEple' - poison-oak.

Two species of pine (nut):[3]

t'o - grows only along coast.
k'e - common inland variety.

Three species of shrub (seed):[4]

p'a'siL - Fages notes three chia varieties, sage seeds.
k!a'ciL - sunflower seeds.
pEca" - buckeyes.

Five species of grass (seed, fiber):[5]

AtLo's - wild oats.
k!as - reed grass whose dried sap is sweet.
peL - thick stalk, rose-like flower, pod has oily seed.
t'onawE' - sturdy stalk (Epicampes rigens).
k!oi - bunch grass (Cladium mariscus).

Five species of shrub (fiber, leaf):[6]

pEsxe't' - white willow.
toela'M - tobacco.
mata'i'- milkweed.
mōno'i - Jimson weed, toloache (Datura meteloides).
k!ē'ciapowat - fern or bracken (Pteridiumaquilinum).

Three species of clover (leaf):[7]

spo'k!at.
cpoku'mt!a.
smo'kumeL.

TABLE 3 (Cont'd.)

Eight species of fruit:[8]

k!eso'i' - prickly-pear cactus.
ōpc - wild grape.
ts!eta'kiL - chuckberry (choke-cherry?).
tcala'k - "Christmas berry" (Heteromeles or Photinia?)
t'Ema's - unidentified (strawberry?).
tetau'pkuL - elderberry.
toipe'N - gooseberry.
eLpo'nE - blackberry.

Five species of tuber:[9]

teta'i - small soap-root.
ck!alE' - large soap-root.
kotcE'L - camass, "Indian potato".
k!ona'kas - camass.
tma - mescal.

Two marsh species:[10]

tuwipē' - tule.
k!amtE - tule.

One marine species:[11]

powa't' - seaweed.

Ethnographic footnotes (A) for Table 3

[1] The list is a compilation of linguistic data from these early accounts: Cuesta (1821), Fages (1775), Hale (1845-1853), Henshaw (1884), Kroeber (1908), and Perouse (n.d.). Mason's list of San Miguel food materials (1912:206) differs in organization and content, but, unless otherwise indicated, the following ethnographic details are from Mason (1912).

[2] "For food they (Salinans) used the pine-nuts and acorns which are extraordinarily abundant in the vicinity" (Taylor, 1860b). Diverse oak species with many acorns grew along the Santa Lucia Mountains and in the San Antonio and Nacimiento River Valleys.

Collection: Acorns (kāp') were gathered after they had

TABLE 3 (Cont'd.)

fallen, but occasionally a long pole was used to knock them down.

Storage: Acorns were stored in granaries (k!ātā) that were shaped like truncated cones. These receptacles were made of interlaced white willow twigs and lined with grass. They were 2 feet high, with a base 3 feet broad on the ground.

Preparation: The acorns were cracked open. Then they were dried in the sun on a large basket tray (ska'pE) or on smaller ones (cla). The dried acorn meat was pounded with a stone pestle (pa'nE) in a stone mortar (toxo'L) into a fine flour that was leached in a basket with fine interstices (tEca") through which water was percolated.

Cooking: Leached acorn flour was used to make mush or bread. Mush (na'siL) was made by mixing this flour with water which was heated by inserting very hot stones into the cooking-basket. Bread (k!one) was made by placing cakes of dough about 3 inches in diameter between 2 layers of grass and baking them overnight in a stone-lined pit where the stones had been heated by a fire. (Such fires were started by twirling a drill of poison-oak wood upon a hearth of willow.) Three live-oak species (cxau'wAt', t'io'i, paxa'kiL) were preferred for making mush, while 2 deciduous oak species (p'ā't, p'a'pix) were preferred for making bread. Another oak (cmo') was also used.

[3] Pine nuts were prepared for consumption as were acorns.

[4] Seeds were harvested with seed beaters (tona'L) made of looped oak sticks and collected in baskets. The conical seed-granaries were called sAp'k'a'ts!. Fages (ibid.) noted that there were "3 different kinds of chia (sage), one bulky like a lentil, and the others more slender." These sage seeds were eaten, as were wild sunflower seeds, without any leaching, but were ground and boiled in the cooking-basket to make soup or mush, rather than parched on trays with coals. Leached buckeyes were also eaten, while unleached buckeyes were used to poison lake or stream water in fishing.

[5] Wild oats covered the hills in many places and were the staple seed. Fages (ibid.) described tecsuma as a plant with rose-like flowers and thick stalk with pod containing an oily seed called pil (Mason's peL plant). He also noted that the sap of reed-grass and another tall leafy shrub was dried to make "sugar and molasses." Certain grasses had shafts ideal for coiling baskets.

TABLE 3 (Cont'd.)

[6] The white willow was most versatile in terms of the many uses made of it: cure for fever; twined granaries; hearth for fire-drill; framework for triangular cradle (tc!aname"); and big carrying basket (pEta'tL) a yard high.

Native tobacco (Nicotina) also had several uses: medicine (leaves mashed or steeped in water, before drinking); drug (leaves mixed with lime from burned abalone, before eating); and hunting magic. (The hunter chewed leaves while stalking game to make it drunk and less wary.)

Milkweed fibers were woven into nets for fishing in Tulare Lake. Jimson weed was fed to boys during a puberty rite so that they might see more clearly and be able to detect witchcraft. The fern's black root was used in basket designs.

[7] Clover was a delicacy that was bitten from the stalk and eaten without any preparation.

[8] Berries, cherries, and other fruit were also eaten raw. The Elderwood itself was used to make: flutes with several stops; a dark blue dye for soaking basketry weft splints; and a split-stick rattle, wound with fiber at one end, and struck on a tree or rock with the other.

[9] Soap-roots were fish poisons, as were tepā'lomoi (a tall plant with a pungent odor) and teni's. The ubiquitous mescal root was dug up with a stick and cooked for 2 days in an earth-oven (Fages, ibid.). Indian potatoes, or camass, were also cooked and eaten. Salinans disliked mushrooms.

[10] Balsa rafts (tuwipē') were used by the coastal Playanos (Ascension, 1861). Women wore tule aprons (Taylor, 1860a) and basket-hats, which also served as eating bowls. Young tule shoots were twined into small trinket baskets (topE's).

[11] Seaweed was heated on a stick over a fire and eaten as a salt flavoring with mush or bread.

TABLE 4a

MIGUELENO-SALINAN ETHNO-ZOOLOGICAL LIST OF 45 VERTEBRATES[1]

Six big-game mammals:[2]

tExa'i' - grizzly-bear.
ta'muL - mountain-lion.
moi' - mountain-sheep.
lowe'cAt! - antelope.
taap! - deer.
elk!a' - coyote.

Eight small-game mammals:[3]

māp! - rabbit.
koL' - jack-rabbit.
caMku'M - ground-squirrel.
tolo'c - tree-squirrel.
mats!e'ko' - chipmunk.
mA'keL - rat.
sk!Almo'k! - mouse.
cowE' - skunk.

Seven reptiles:[4]

xapailE" - lizard.
toiyElE" - mountain-lizard.
cwakek!a" - horned-lizard.
smeko'i - rattlesnake.
ts!aike" - snake.
seNk!o'L - snake.
tawE' - turtle.

Two amphibians:[5]

wākā't! - frog.
t!ikolE' - toad.

Seventeen birds:[6]

ckō'tAtE - owl.
ts!E'tenek! - owl.
cōkono'i - horned-owl.
spako' - ground-owl.

ckā - hawk.
spēk' - red-tail hawk.

snai - eagle.

xopNe'L - red-head vulture.
te"tc! - California condor.

smate'xaN - quail.
k!aiya'k' - mountain-quail.
tikmo' - band-tail pigeon.
taxwe"n - turtle-dove.

kala'k - white goose.
elpa't! - duck.
talwa'x - crane.
swī'yo - unidentified.

Five fish:[7]

cwaN - trout.
p'u'Lxoi - sucker.
ṭ'eteya'u - salmon.
ċat! - bull-head
septa'l - unidentified.

TABLE 4b

MIGUELENO-SALINAN ETHNO-ZOOLOGICAL LIST OF 6 INVERTEBRATES[8]

Four unsegmented (mollusks):[9]

cmaiyE'k! - blue abalone.
k!eLt'u' - red abalone.
naiyi'k! - clam.
sk!eN - unidentified.

Two segmented:[10]

taitc!ā'tak - crab.
leme'M - yellowjacket.

Ethnographic footnotes (A) for Tables 4a and 4b

[1] The list is Mason's (1912:206). It has been completely reorganized, but a search through other linguistic sources has not filled certain gaps in this list. For instance, Mason does not supply native names for many ethnologically relevant fauna, which are mentioned in his text, viz.: dog, wolf, goat, otter, red-shafted flicker, kingfisher, calendar lark, ring-dove, crow, raven, swallow, yellowhammer, viper, tarantula and scorpion.

Mason's 1912 monograph is the fullest account of the Migueleno-Salinan. Some of his data are contradicted by Harrington (1942), whose list of culture elements is abstracted on Table 5. With these exceptions, cited in these footnotes, Mason's descriptions have been relied upon for these ethnographic notes.

[2] "Game was more than ordinarily plentiful, especially deer, but with the primitive weapons upon which the aborigines depended, it is doubtful if venison could ever have been a staple food. Acorns, which are very abundant in the region, doubtless formed the principal staple, seeds and smaller animals being also of more importance than the meat of larger game" (p. 117).

Deer were run down by an individual hunter who wore a deer-head hat-disguise. Wind direction was checked by dropping dirt, and the deer were approached from leeward by a stalker imitating the movements of a deer. The distal tibia of a deer was sharpened to make an awl (tetā'xk). Buckskin clothing and nets were made, too.

Such nets were used as carrying containers as well as for

Ethnographic Footnotes for Tables 4a and 4b (Cont'd.)

catching fish and rabbits. Long strips of buckskin were tied with a twine that was made from dried fibrous milkweed bark (t'matL). (This bark was peeled from the stem, crushed, rolled on the knee into a strand, and twisted together with another strand to form twine.)

Mason guessed that bears were not often eaten "due probably as much to their ferocity as to the supernatural shamanistic power and human resemblance imputed to them" (p. 121). Yet bears were hunted. Bait was placed near a bear trail or lair, and the hunter hid behind a booth or blind in a nearby hole from which he shot the bear with arrows propelled by sinew-string on a sinew-backed bow. The tough meat of old bears was not esteemed, but cubs were relished as a delicacy.

The coyote figured in mythology as the animal that taught women how to copulate, and was tabu among some groups, as were dogs and wolves. The puma and wildcat were eaten by Antoniano-Salinan, according to Harrington (1942:7).

[3] Rabbits were caught with nets (t'e'LtAL), maybe in communal hunts that also sought antelope, deer, and bear. Rabbit (or otter) skins were sewn together with twine or woven into robes. Fur blankets were called cLēmī'. Meat was roasted over flames or in coals of fire. Baked overnight in earth-ovens, meat may keep over a week. For longer preservation, meat was air-dried ("jerked"). Seldom, if ever, was meat boiled.

Harrington (p. 6) noted how rats were caught by burning nests, and how ground-squirrels were smoked out of holes. Miguelenos ate skunks, which were tabu among Antonianos, whose myths drew the skunk as a wizard who used his urine as a lethal weapon.

[4] Miguelenos did not relish lizards, but Antonianos did. All reptiles were considered proper Salinan food. Although the mythical 2-headed snake (taliyE'kA'tapelta) was a monster, snakes were caught with sticks and cooked in hot ashes. Rattlesnake rattles (teṭ!aut!onE") were used for ceremonial rattles.

[5] Amphibians were eaten or not, according to personal choice.

[6] Birds dominated Salinan mythology. Yet most of them were eaten, as were their boiled eggs (tete'k'Enel). According to

Ethnographic Footnotes for Tables 4a and 4b (Cont'd.)

Harrington (p. 7), Antonianos ate hawks, as did Costanoans and Ventureno-Chumash, but Mason noted that "owls, hawks, condors, buzzards and eagles are not eaten in some localities due partly to reverence for them and partly to a dislike for their flesh" (p. 121). The hawk and raven were monster-killers who destroyed a man-killing rock (xu'i) a few miles above Mission San Antonio by knocking off its head with stones. The raven's eyes turned grey after rubbing on this rock guarded by crows and shrikes. The shrike (ka'tcatsani'L?) once rescued a woman from a bear by pecking out its eyes, and it also helped a hunter by pecking out an antelope's eyes. The red-shafted flicker, unable to save some Indians from a savage animal, wept, and his black breast became his sign of mourning.

The condor politely ripped open dead carcasses for its weaker relative, the vulture, with whom it could speak.

Before there was a world, the duck plunged into the sea, but failed to bring up any earth. Then the kingfisher dived into the water. With the aid of a heavy weight placed on its back by the eagle, this kingfisher succeeded in reaching the bottom of the sea and bringing up some earth. The eagle made the world out of this bit of dirt, made man from clay and woman from a feather. The eagle was chief of all animals, and gave fire to man.

[7] Fishing details are lacking in Mason's monograph, but Harrington (1942:#69) mentions fish poisoning among Migueleno Salinan.

[8] This list is Mason's (1912:206).

[9] The "blue" abalone is probably Haliotis fulgens; the mid-tidal species has a mottled greenish hue. It may be significant that neither Mason nor Harrington list any details regarding the collection or preparation of abalone. (In historic times, the Salinans are inland groups, probably cut off from the coastal source, and even the Antoniano Salinans, according to Harrington, item #96, did not know that mussels were poisonous at certain times of the year. This suggests that inland living dominated the Salinans in historic times.)

The recognition of Haliotis rufescens is curious here among the Migueleno Salinans. This is a species that is more common farther north, among the Costanoans or Miwok. It occurs in a deep tidal zone at this Willow Creek beach, but seems to have been used - not by the Salinans - but by the Costanoans. The Salinan awareness of

Ethnographic Footnotes for Tables 4a and 4b (Cont'd.)

this species probably represents recognition, not so much of an edible or desirable species, but of the prize that drove the Costanoans into their lands.

The recognition of clams may be recent, and likely an outcome of protohistoric trade in Pismo clams, for an ornamental (rather than dietary) usage, with Chumash.

[10] Neither Mason nor Harrington indicate that crabs were eaten by the Salinans, but the recognition of such an animal suggests at least some contact with the ocean, probably in protohistoric times.

Yellowjackets occur inland, of course, and are eaten. The brightly colored encrustation was probably used a bit for ornamental purposes, but neither Mason nor Harrington elucidate on this point.

TABLE 5

FIFTEEN "ARCHAEOLOGICAL" ELEMENTS IN HARRINGTON'S LIST (1942)

	Costano	Salinan	Chumash	Serrano	Gabrielino
Bedrock mortars	x	x	x	x	x
Portable mortars	x	x	x	x	x
Hopper mortars	x	x	x	x	x
Whole Olivella	x	x	x	x	x
Olivella disc beads	x	x	x	x	x
Musical rasp		x			
Communal dwellings		x	x	x	
Grooved steatite arrow straightener		x	x	x	x
Beads measured around hand		x	x	x	x
Earth-covered assembly house			x		
Spear thrower			x		
Extended burial			x	x	
Grave planks & masts			x	x	
Small cylinders as treasure			x	x	
Deer hoof rattle			x	x	x
Sudatory hut against bank			x	x	x
Total number of elements per tribal unit	5	9	15	10	9
Distinctive elements	0	1	2	0	0

TABLE 6

MONTEREY ELEMENTS FOUND ELSEWHERE BY PILLING (1955)[1]

12 "southern" elements ...	Sources: SLO, SBa, Ven, LAn counties.
Basin metates	Early culture of Topanga Canyon in northern LAn,[2] Oak Grove in southern SBa,[3] Hunting in southern SBa,[4] strata I-II at Point Sal in northern SBa,[5] Los Osos Valley in SLO.[6]
Earth-bound mortars	SBa,[7] SLO-5, -11, -12, -25. Earth-bound mortars are "not common" north of SFr, but scatter north of Mnt to Carquinez Straits and the east shore of San Francisco Bay.
Mescalitan Island Las Llagas type ceremony bowl.....	SBa,[8] SLO-56, -125.
Cairn-covered burials.....	SBa,[9] Lompoc and upper Santa Ynez Valley in southern SBA, [10] SBa-205.
Shell fishhooks	Historic Luiseno in LAn,[11] Santa Barbara Channel,[12] SBa-205 (Jalama).
Abalone pries	San Miguel Island in SBa, [13] San Nicolas Island in Ven,[14] Channel Islands (San Clemente in LAn, Santa Rosa in SBa, San Nicolas in Ven).[15]
Painted petroglyphs	SBa [16]
Punctate bone decoration .	SBa;[17] Not punctate at Ala-328?[18]
Dish made of abalone	SBA;[19] No dish at Son-299 or Ala-307?
Use of Asphaltum	SBa and SJo![20]
Hopper mortars	SBa,[21] SBa-485, vicinity near SLO-5 (in Spooner Collection).
P.pts., stem, round-base .	Santa Barbara Channel,[22] Hunting in southern SBa,[23] strata II-III at Point Sal in northern SBa.[24] These stemmed projectile points also occur in: Sac,[25] SBn,[26] SFr and Mrn.[27]

TABLE 6 (Cont'd.)

3 "northern" elements	Sources: SJo, Sta, Mer, Fre, Kin, Ker
P.pts., side-notch, concave-base, triangular .	Buena Vista Lake region in Ker,[28] "further north" (Kin, Fre, Mer, Sta?) maybe,[29] Stockton-Lodi region in SJo,[30] Mer,[31] SJo and Sta.[32]
Unglazed ceramics	Yokuts, Western Mono, Northern Paiute of the Southern Sierras.[33]
Incised clamshell beads ..	SJo-1,[34] Kin (near Corcoran, in D.M. Witt Collection),[35] Ker-74,[36] southern San Joaquin Valley.[37] Incised clamshell beads also occur on San Miguel Island in SBa.[38]

Footnotes for Table 6

[1] This sums up Pilling's analysis of the distribution of specific Monterey elements in other parts of California. The list is Pilling's, as are the following citations.

[2] Treganza and Malamud, 1950:141-144, pl. 16.

[3] Rogers, 1929:pl. 54.

[4] Orr, 1943:27, 38.

[5] Carter, 1941:215.

[6] Pilling, 1951:199.

[7] Rogers, 1929:390.

[8] Orr, ms.

[9] Rogers, 1929:opp. 342. Orr, 1943:24.

[10] Ruth, ms.

[11] Drucker, 1937:7, 47. Sparkman, 1908:200.

Footnotes for Table 6 (Cont'd.)

[12] Heizer, 1949a:89.

[13] Heye, 1921:pls. XLVII, XLVIII, XLIX.

[14] Meighen and Eberhart, 1953:122, fig. 40.

[15] Gifford, 1937, ms. Gifford, 1939:327 (Coast Yuki, Men). Gifford, 1940:171.

[16] Steward, 1929:96-109.

[17] Heye, 1921:pls. LVII, LXX. Gifford, 1940. Orr, 1947.

[18] Davis, 1954, ms.:56.

[19] Rogers, 1929:396. Orr, 1943:33. Gifford, 1947:7. Baumhoff, 1951:5-6.

[20] Heizer and Treganza, 1944:319.

[21] Rogers, 1929:opp. 357.

[22] Heye, 1921:pl. XXXVIII.

[23] Rogers, 1929:pl. 59.

[24] Carter, 1941:215, 224.

[25] Heizer, 1949b:figs. 11-13-SAa.

[26] Pilling, et.al., UCAS ms. no. 82. UCAS, SBn Site Records.

[27] Beardsley, 1954:9-83.

[28] Wedel, 1941:pl. 39.

[29] Gifford and Schenck, 1926:84.

[30] Schenck and Dawson, 1929:380, pl. 91.

Footnotes for Table 6 (Cont'd.)

[31] Pilling, 1950:438.

[32] Treganza, 1952:22.

[33] Gayton, 1929. Pilling, 1950:439-440. H. Riddell, 1951: fig. 1. Fenenga, 1952:343-344.

[34] Wedel, 1941:50, pl. 27-n.

[35] Pilling, 1948b, ms.

[36] F. Riddell, 1951:fig. 1.

[37] Gifford and Schenck, 1926:58, pls. 14, I, 15.

[38] Heye, 1921:pl. CXVI.

TABLE 7

MONTEREY SITES AND COLLECTIONS USED BY PILLING (1955)[1]

12 "southern" elements[2]	Sources in Monterey County (Mnt-sites)
(EARLY - vegetable-gatherers, coastal-dune dwellers)	
Basin metates	30, 197 - some hunting indicated here?
(MIDDLE - mollusc-gatherers, creek-bank dwellers)	
Earth-bound mortars	25% N.W. Mnt, e.g., 6,98,237,260,274-276
Mescalitan Island Las Llagas type ceremony bowl.	88(?) (in Post Collection)
Cairn-covered burials	281, 108 (Burial 2)
Shell fishhooks	281-282, 12 (in Fackenthal Collection)
Abalone pries	133, 157, 159, 3 (in Robson Collection)
(LATE-MIDDLE and LATE infiltration of elements)	
Painted petroglyphs	"about 25 ... near Mnt-250"
Punctate bone decoration	131 - probably non-utilitarian object
Dish made of abalone	250 - "a container for asphaltum"
Use of asphaltum	Robson Collection (12 hop. mortars, p. pts.)
Hopper mortars	around 281, 91 (in Colby Collection)
P. pts., stem, round-base.	5, 108, Fackenthal Collection (12, 173, Point Pinos Reserve), Downie Collection (18), Martin Collection (18, 101), Calhun Collection (57), Robson Collection (90).

3 "northern" elements[3]	... Sources in Monterey County (Mnt-sites)
(LATE - salt and abalone collectors, sand-dune campers)	
P. pts., side-notch, concave-base, triangular	One unidentified site, 233 (historic), 18, 157 (in Fackenthal Collection)
Unglazed ceramics	18, 159, Fackenthal Collection
Incised clamshell beads	Fackenthal Collection

TABLE 7 (Cont'd.)

[1] This tabulation is based, not on any comparable table, but solely on data abstracted from Pilling's text. The selection of elements, their grouping according to a north-south dichotomy, the ecological characterizations, and this sequence are Pilling's.

[2] "Southern" subsumes adjacent San Luis Obispo and nearby Santa Barbara counties, rather than more southerly ones.

[3] "Northern" refers mainly to nearby San Joaquin Valley. Such San Francisco Bay elements as abalone ornaments, bone awls, pestles and mortars are too "generalized and noncharacteristic" (Pilling, 1955:77), so they have not been included in this list.

TABLE 8

DATA ON 14 INDIVIDUALS IN 11 BURIALS AT BOTH WILLOW CREEK SITES*

No.	Pit	Depth	Condition	Sex	Age	Pathology	Grave-size in inches	Position: Sit.	Ext.	Lt.S.	Rt.S.	Flex.	Orientation: N	NW	W	SW	S	SE	NE	Cremat.	Rocks on Pit	Associated objects	Remarks
MNT-281																							
1	SW3	66"	Poor		5?		12X12			x		tight				x						1 bone gorge 5 chert chips	Originally sitting?
2	NE1	56"	Poor		4		20EW 11NS			x		loose					x						No skull
3	NE5-6	66"	Good		Adult		30EW 22NS			x		semi-	x								x	1 cobble mortar	Ventral semiflex
4	NE3	60"	Poor		Adult		29X16				x	tight				x				x		1 flaked abalone	Skull burned
5	C6	30"	Good		Post-natal		14NS 10EW		x	x			x										Disturbed by rodents
6	C2	55"	Good	F	Teens	Broken maxillary	19EW 18NS				x	tight			x						x	2 bone points	Porosity of sacrum
7	C4-D4	45"	Fair	F	Mature adult	Lipping vertebrae	34X25			x		loose			x						x	1 fragmentary horn flaker	
8-1	D5-6	41"	Poor		Adult		42X42				x	tight?	x										Charred midden under bur. 8-4
8-2	D5-6	41"	Poor	M	Adult		42X42				x	loose							x				
8-3	D5-6	41"	Poor	M	Teens		42X42				x	loose							x				
8-4	D5-6	41"	Poor		Infant		42X42			x		loose					x						
MNT-282																							
1	A7	43"	Poor		Adult		24X24	x									x			x		1 lump of red ocher	
2	B11	43"	Fair	F	Adult		32NS 23EW				x	tight							x		x	1 olivella shell bead	
3	C2-3	26"	Poor	M	Adult		41EW 23NS				x	tight					x				x		

* All burials are illustrated in Figure 7, and located on Map 8. Plates 5 and 6 show photographs of five burials.

TABLE 9

DATA ON 25 CHIPPED LITHIC POINTS FROM BOTH WILLOW CREEK SITES*

UCMA number	Length (cms.)	Maximum width (cms.)	Weight (grams)	Nature of material	Asphaltum on base	Parts missing
Mnt-282:						
1-124861	4.8	2.9	8.72	glossy beige chert	x	
1-124822	(4.7)	2.9	(6.24)	glossy beige chert	x	Tip (reworked)
1-124824	4.5	(3.1)	(6.52)	glossy beige chert	x	Barb
1-124821	4.2	2.5	(4.15)	glossy beige chert	x	Part of base
1-124820	(5.2)	3.3	(9.10)	glossy beige chert	x	Base
1-124798	6.7	(2.9)	(15.01)	mottled chalcedony	x	Shoulder
1-124860	(6.8)	2.8	(22.35)	mottled chalcedony	x	Tip
1-124823	(5.5)	2.7	(10.74)	mottled black chert	x	Base, tip
1-125493	(3.7)	4.0	(11.50)	mottled chalcedony	x	Base, tip
1-125488	(3.7)	3.4	(8.19)	glossy grey chert	x	Base, tip
1-124800	(5.5)	(2.8)	(8.52)	matted beige chert		Base, barb
1-124802	4.4	3.5	9.50	mottled chalcedony		
1-124801	(3.8)	(3.0)	(8.34)	glossy beige chert		Base, barb
1-124772	(4.5)	(3.0)	(8.85)	glossy grey chert		Base,tip,barb
1-124825	(4.5)	(2.5)	(8.24)	specked black chert		Base,tip,barb
1-125492	(4.5)	(3.2)	(10.78)	mottled black chert		Tip
1-124799	(6.8)	(3.0)	(18.86)	mottled brown chert		Base
1-124862	9.3	3.8	34.75	mottled chalcedony		
1-124797	3.9	2.2	6.10	black obsidian		(Tip?)
1-125261	(3.5)	2.0	(5.74)	black obsidian		Entire base
1-124864	(4.9)	3.8	(26.04)	banded reddish chert		Entire base
Mnt-281:						
1-125268	(5.0)	2.3	(8.74)	yellow-brown jasper	x	Base
1-125108	(5.5)	2.5	(12.71)	specked black chert		Base
1-133563	(5.2)	(3.2)	(23.42)	black basalt		Base, barb
1-133562	9.0	3.6	46.00	grey chert, NAa-type		

* All 25 chipped lithic points are illustrated in Figure 8, where the precise location of each point is given, and an attempt is made at a tentative typology.

TABLE 10

DATA ON 15 PESTLES FROM SITE MNT-281*

Diagnostic elements	UCMA number	Pit & Depth	Length (mms.)	Diameter (mms.)	Some descriptive remarks about the artifacts
OVERALL WORKING AND CYLINDRICAL SHAPE	1-125126	NE5 29"	(55)	69-Flange 43-Break	Granitic. Looks like a maul, flanged end. Fine.
	1-125471	NE8X 18"	(210)	49-Break	Granitic. Only distal end. Finely ground.
	1-125362	NE8 24"-36"	212	58-Widest 55-Distal	Granitic. Finely pecked and ground. Complete.
	1-125186	NE3 28"	(170)	40-Distal (78-Break)	Granitic. In process of manufacture. Crude.
	1-125355	NE8 48"	(60)	52-Break	Granitic. Rounded distal end. Asphaltum at break.
END USE ONLY ON ONE END OF ROCK	1-124950	NW7 36"-48"	135	52-56 (54 av.)	Nephritic. Unshaped. Naturally smooth and roundish. Looks like hammerstone. End worn.
END USE ON BOTH ENDS OF COBBLE	1-125581	SE6 12"-24"	170	41X65 Flattish	Flattish, elongate. Unshaped. Both ends worn.
	1-125182	NE3 40"	210	60X90 Flattish	Stream-worn cobble. Very slight wear at both ends.
	1-125295	NE6 60"-72"	185	Roundish 67X70	Stream-worn cobble. Very slight wear at both ends.
	1-133513	C3 17"	140	Roundish 49X54	Stream-worn cobble. Very slight wear at both ends.
	1-124901	NW4 0"-12"	140	Roundish 40X47	Stream-worn cobble. Very slight wear at both ends.
	1-133550	C8 37"	100	44X67 Flattish	Stream-worn cobble. Very slight wear at both ends.
FAR TOO FRAGMENTARY TO CLASSIFY	1-133539	C4 12"	(100)	62X65 at break	Granitic. Distal end of unshaped rock. Worn.
	1-133541	A9 12"	(90)	30X35 at break	Granitic. Distal end of unshaped rock. Worn.
	1-124999	SW3 60"-72"	(130)	60X65 at break	Stream-worn cobble. Very slight wear on the end.

* Several pestles are illustrated in Figure 10.

TABLE 11

SOME DATA ON 4 HOPPER MORTARS FROM SITE MNT-281*

UCMA number	Pit & Depth	Height (mms.)	Diameters (mms.)	POUNDING-HOLE Diameter (mms.)	Depth (mms.)	Descriptive Remarks
1-124885	NW1 24"	150	180 X 220 (sub-circular)	85 X 90 (almost circular)	15	Granitic. Roundish water-worn cobble. Asphaltum around edge of hole.
1-125174	NE2 19"	100	(Broken across the pounding hole)	70	8	Fragment of flattish, circular cobble. Asphaltum around edge of hole.
1-133678	C1 28"	110	260 X 300 (sub-circular)	80	30	Ring of asphaltum, about 5 mms. thick, and 50 to 60 mms. in width, is around the hole.
1-125006	NW11 72"	200	250	135	40	Very round boulder, with an asphaltum-edged hole in one surface.

* Several hopper mortars are illustrated in Figure 10.

TABLE 12

MEASUREMENTS OF 12 PITTED STONES AT MNT-281 AND ONE AT MNT-282*

Diagnostic elements	UCMA number	Pit & Depth	Length (mms.)	Thickness (mms.)	Width (mms.)	POUNDING-HOLE Diameter (mms.)	POUNDING-HOLE Depth (mms.)	Some descriptive remarks
Mnt-281:								
GLOBULAR SHAPES	1-125272 Burial 3	NE5 68"	96	81	94	45	8	Fist-sized ovoid macro-crystalline water-worn rock. Pit at long end.
	1-133540	C2 30"-36"	88	(Broken)	70	40	8	Same as above, but a fragment is broken off.
LARGE FLAT SLABS	1-125564	SE2 36"-48"	145	20	140	46X51 (subcircular)	9	Flat rectangular slab of serpentine.
	1-125157	NE4 23"	205	49	162	a) 47X55 b) 34X37	10 2	Pounding holes on both flat sides of the slab.
	1-125351	SE2 12"-24"	147	65	100	35	12	Hole looks natural, but edges are pecked a bit.
SMALL FLAT SLABS	1-125308	NE2X 20"	85	10	60	39X47	8	Small flat rectangular serpentine. Rough hole.
	1-125123	NE1 15"	75	35	67	35.5X39	6	Water-worn pebble. Pit in one surface.
	1-133538	A9 8"	(Broken ends and edges)			49	13	Fist-sized serpentine slab fragment. Waterworn.
	1-133536	C3 12"-18"	110	59	90	(Slight pecking just started)		Fist-sized water-worn pebble.
	1-133537	C3 6"-12"	(Irregular sandstone)			(Slight pecking on both sides)		Small yellow sandstone, like S.F. Bay specimens.

TABLE 12 (Cont'd.)

Diagnostic elements	UCMA number	Pit & Depth	Length (mms.)	Thickness (mms.)	Width (mms.)	POUNDING-HOLE Diameter (mms.)	POUNDING-HOLE Depth (mms.)	Some descriptive remarks
SMALL FLAT SLABS	1-125454	SE2 24"-36"	38	18	20	20up	3	Resembles a miniature paint mortar.
PIGMENT MORTAR	1-125304	SE2 24"	100	55	100	58X60	23	Sides have been nicely pecked all around.
Mnt-282:								
DISC SHAPED	1-124830	A12 75"	80	28	70	(Slight pecking on both sides)		Sedimentary disc-shaped stone. Pits - both sides.

* Several pitted stones are illustrated in Figure 10.

TABLE 13

DATA ON 8 SINKER STONES FROM BOTH WILLOW CREEK SITES*

UCMA number	Pit & Depth	GROOVE ALONG: long axis	GROOVE ALONG: short axis	SECONDARY USE: Hammer-stone	SECONDARY USE: Cooking-stone	Descriptive remarks
Mnt-282						
1-124778	A10 50"	x				Fist-sized, igneous and
1-124779	A10 56"	x		x		metamorphic rock, with
1-124849	A14 48"	x		x		a complete equatorial-
1-124851	B9 34"	x		x		groove that was pecked
1-124850	A14 48"		x		x	into the surface.
1-124848	A13 40"		x			No nephrite, serpentine.
Mnt-281						
1-125604	SE6 0"-12"	PECKED NOTCHES				Dimensions: 67x53x20mms.
1-125551	SE5 24"-36"	NATURAL HOLE				Hole-edges show pecking, wearing.

* Several sinker stones are illustrated in Figure 11.

TABLE 14

MEASUREMENTS OF 7 RUBBING STONES AT SITE MNT-281*

UCMA number	Pit & Depth	Length (mms.)	Thickness (mms.)	Width (mms.)	Descriptive remarks
1-125009	NE2 36"	135	30	115	Each stone is ovid to circular in shape.
1-124904	NW3 0"-24"	100	30	100	No pecking is noted. One or both surfaces
1-125023	No location	100	35	90	are very clearly rubbed and smoothed.
1-125068	NE3 12"-24"	90	35	90	BURNED
1-133549	C2 12"-18"	85	25	85	BURNED
1-125396	NE4X 50"	85	40	80	ASPHALT
1-125185	NE6 48"	105	30	100	ASPHALT

* Several rubbing stones are illustrated in Figure 11.

TABLE 15

DATA ON 27 MISCELLANEOUS LITHIC PIECES AT BOTH WILLOW CREEK SITES*

Artifact "type"	UCMA number	Pit & Depth	Some descriptive remarks about artifact
Mnt-281:			
FIBROUS MINERAL	1-124945	SW3 48"-60"	White. Both ends battered. 105 mm. long. 37 mm. wide. 20 mm. thick.
SCHIST FRAGMENT	1-125130	NE5 48"-60"	Fractured lengthwise. All except broken edge are rubbed. 70 mm. long. 4 mm. thick.
CHERT SLAB	1-125158	NE4 14"	Deepened fracture-plane grooves, ground. Crudely flaked ends. 230 x 90 x 25 mm.
SLATE DISC	1-124989	NW1 70"	Layered to form two flat surfaces. Edges battered. Diameter 100 mm. 12 mm. thick.
STEATITE FRAGMENT	1-124915	NW3 0"-12"	Natural holes. Also hole pecked through smoothly ground surface. End broken.
PERFOR-ATED SLAB	1-125118	NE5 60"-72"	Fractured lengthwise through hole pecked from both sides. 167mm. long. 10mm. thick.
AWL SHARPENER	1-133551	C3 30"	Flat slate pebble, with groove cut into one surface, across short axis. Fist-size.
CHIPPED STEATITE	1-125463	SE2 36"-48"	Flat oblong, 75 x 38 mm., 4 mm. thick at narrow end (10 mm. at wide end). Chipped.
TEXTILE IMPRESSION	1-133533	E5 6"-12"	Nephrite pebble smeared with asphaltum, showing textile-like impressions.
FIBRE IMPRESSION	1-125388	NE8 24"-36"	Fibre impressions in asphaltum lump, formed around a stone fragment.
ASPHAL-TUM COVERED STONES	1-125096	NE5 21"	See below for data on two such stones covered by asphalt at Mnt-282.
	1-125350	SE2 12"-24"	
	1-133534	C2 24"	
	1-125018	NE1 20"	
	1-125212	NE3 48"-60"	
	1-133532	D6 14"	
	1-125223	NE3 36"-48"	
FLAKED SERPEN-TINE CORE DISCS	1-133566	C6 12"	Dia; 65x75mm. 20mm.thick, taper sharp.
	1-133565	C3 33"	Dia; 55x65mm. 15mm.thick, taper blunt.
	1-133535	C2 48"-52"	Dia; 55x65mm. 25mm.thick, taper blunt.

TABLE 15 (Cont'd.)

Artifact "type"	UCMA number	Pit & Depth	Some descriptive remarks about artifact
GRANITIC GAMING(?) STONES	1-125088	NW3 36"-48"	Ground. (Slingstone?) 45x50 mm. diam.
	1-125224	NE3 36"-48"	Ground. (Slingstone?) 47x50 mm. diam.
	1-125409	SE2 0"-12"	Ground. (Hammerstone?) 56x70 mm. diam.
ABRADING STONE	1-125354	No location	Sandstone slab, 3mm. thick. Edge bevelled by rubbing. 85x45mm. (See Mnt-282).
Mnt-282			
ABRADING STONE	1-124813	A11 56"	Disc-shaped sandstone fragment. Surface smoothed; pecked edge, sharp shoulder.
ASPHALTUM COVERED STONES - IMPRESSIONS	1-124856	B9 30"	Fibre impressions in thin asphaltum on rock, size of child's fist.
	1-125433	D2 46"	Possible basket impressions on fragment of big stone, partly capped by asphalt.

* Several artifacts are illustrated in Figure 11.

TABLE 16

DATA ON 8 HAMMERSTONES FROM SITE MNT-282*

UCMA number	Pit & Depth	Fist size	Small & elongate	Very flat	BATTERED one end	BATTERED both ends	Descriptive remarks
1-124852	B12 63"	x				x	Sedimentary
1-124855	B10 36"-48"	x				x	
1-124854	A13 64"	x		x	x		Other end is bevelled
1-125336	D2 12"-24"	x			x		Some asphalt covers rock
1-124853	B10 36"-48"	x		x	worn		One end is a bit worn
1-128787	(C-D) 72"		x	x		x	
1-125628	B10 No depth		x	x	x		NEPHRITIC (Only one!)

* Several hammerstones are illustrated in Figure 12.

TABLE 17

IDENTIFICATION OF 69 NEPHRITIC JADE HAMMERSTONES AT SITE MNT-281*

UCMA number	Pit	Depth	UCMA number	Pit	Depth	UCMA number	Pit	Depth
1-124890	No location		1-125357	No location		1-125577	SE3	24-36
1-124976	NW7	48-60	1-125358	No location		1-125580	SE5	12-24
1-124978	NE3	36-48	1-125359	No location		1-125587	SE4	24-36
1-124985	NE2	12-24	1-125360	No location		1-125594	SE3	36-48
1-124986	NW6	48-60	1-125361	No location		1-133496	B9	22
1-124993	NE4	24-60	1-125367	NE8	30	1-133497	D6	6
1-124994	NE4	24-60	1-125368	NE8	30	1-133499	C1	43
1-124995	NW5	30	1-125381	SE2	36-48	1-133500	Back-dirt	
1-124998	SW3	60-72	1-125382	SE2	36-48	1-133501	B8	36
1-125000	SW3	60-72	1-125393	NE12	None	1-133508	B8	29
1-125022	SW3	48-60	1-125394	NE12	None	1-133509	B9	10
1-125059	No location		1-125395	NE12	None	1-133511	C8	29
1-125060	No location		1-125403	NE4X	None	1-133512	C3	38
1-125111	No location		1-125406	NW13	24	1-133515	B9	11
1-125179	NE5	12-24	1-125407	NW13	24	1-133516	B8	36
1-125188	NE1	60-72	1-125473	NE6X	36-48	1-133518	C3	34
1-125220	NE3	48-60	1-125560	SE6	24-36	1-133520	D5	19
1-125242	NE2	24-36	1-125562	SE4	36-48	1-133525	E5	6-12
1-125273	NE4	36-48	1-125563	SE4	36-48	1-133526	B9	11
1-125311	NE2X	None	1-125565	SE2	36-48	1-133528	B9	24
1-125312	NE2X	None	1-125566	SE2	36-48	1-133529	B9	11
1-125320	NW12	0-24	1-125568	SE2	36-48	1-133530	A9	30
1-125356	NE8	45	1-125569	SE2	36-48	1-133531	E5	6-12

* These are very generalized artifacts. They vary in size from the small elongate pebbles to slightly larger than fist-size cobbles. Generally, the average size is that of a man's fist. At least 69 of them are nephritic jade. The following dozen are also nephritic in appearance:

1-124948	No location	
1-125155	No location	
1-125177	NE1	66
1-125184	NE2	24-36
1-125189	NE1	60-72
1-125190	NE6	48-60
1-125270	NE4	40
1-125550	SE5	24-36
1-125558	SE3	12-24
1-125605	SE6	0-12
1-133504	C5	36
1-133527	C8	24

A tentative typology of these hammerstones is proposed in Figure 12, where all 8 hammerstones from Mnt-282 are illustrated.

TABLE 18

IDENTIFICATION OF 48 NON-NEPHRITE HAMMERSTONES AT SITE MNT-281*

UCMA number	Pit	Depth	UCMA number	Pit	Depth
1-124912	NW3	0-12	1-125410	SE2	0-12
1-124975	NW7	48-60	1-125413	SE2	24-36
1-124977	NW7	48-60	1-125417	SE2	24-36
1-124981	NE1	none	1-125458	SE2	24-36
1-124982	NE1	none	1-125461	SE1	66
1-124996	NW5	30	1-125474	SE2	12-24
1-124997	SW3	60-72	1-125554	SE3	12-24
1-125003	NE5	24-36	1-125585	SE4	24-36
1-125067	NE3	12-24	1-125595	SE3	36-48
1-125087	SW5	24-36	1-125606	SE5	ca.48
1-125129	NE3	48-60	1-133495	B8	27
1-125131	NE5	48-60	1-133498	C2	18-24
1-125145	NE5	36-48	1-133502	C2	30
1-125187	NE1	62	1-133503	B8	43
1-125231	NE6	24-36	1-133505	C2	18-24
1-125233	No location		1-133506	C3	21
1-125289	NE8	12-24	1-133507	A9	12
1-125290	NE8	12-24	1-133510	A9	8
1-125291	NE8	12-24	1-133514	A9	27
1-125301	NW13	none	1-133517	D4	36-43
1-125365	NE8	24-36	1-133519	C8	40
1-125397	NE13	none	1-133521	B8	47
1-125404	NE4X	none	1-133522	C2	50
1-125408	SE2	0-12	1-133523	C2	30-36

* A tentative typology is proposed in Figure 12.

TABLE 19

WEIGHTS AND LOCATIONS OF 22 CHERT OBJECTS AT SITE MNT-282*

UCMA number	Pit	Depth (ins.)	Weight (grams)	UCMA number	Pit	Depth (ins.)	Weight (grams)
1-124788	A10	64	12.76	1-124828	A11	72	21.85
1-124789	A10	62	14.76	1-124863	A14	46	14.78
1-124790	A10	64	13.06	1-124865	B12	50	21.62
1-124791	A11	59	55.26	1-125254	D1	0-12	27.54
1-124792	A9	56	26.98	1-125259	C1	0-12	17.97
1-124793	A11	65	18.35	1-125260	C1	0-12	23.46
1-124794	A11	60	42.95	1-125337	D2	12-24	5.99
1-124795	A10	54	40.97	1-125434	D2	46	6.71
1-124796	A9	50	57.30	1-125438	D2	12-24	7.73
1-124826	A9	73	74.47	1-125495	C1	60-72	11.52
1-124827	A12	70	22.30	1-125496	C1	60-72	11.43

* Several pieces are sketched in Figure 13, since they are a bit too generalized for arranging into specific tool-types, that is, each may have a variety of functions: knife, saw, scraper, blade blank, etc. Cores and flakes are all worked to some degree, but not all of them exhibit any secondary trimming.

TABLE 20

WEIGHTS AND LOCATIONS OF 40 CHERT OBJECTS AT SITE MNT-281*

UCMA number	Pit	Depth (ins.)	Weight (grams)	UCMA number	Pit	Depth (ins.)	Weight (grams)
1-124892	NW3	24-36	6.70	1-125552	SE5	24-36	4.72
1-124893	NW3	24-36	16.36	1-125552	SE5	24-36	6.80
1-124897	SW3	12-24	10.94	1-125555	SE3	12-24	25.43
1-124899	NW4	12-24	10.14	1-125555	SE3	12-24	37.44
1-124943	NW5	12-24	48.30	1-125556	SE3	12-24	68.33
1-124992	NW10	48-60	25.79	1-125575	SE3	24-36	30.44
1-125013	NW1	48-60	15.86	1-125576	SE3	24-36	19.45
1-125061	No location		7.68	1-125583	SE4	24-36	32.63
1-125109	NE4	0-12	8.39	1-125584	SE4	24-36	25.45
1-125230	NE6	24-36	23.56	1-125586	SE4	24-35	3.86
1-125228	NE2X	48	6.10	1-125601	SE6	0-12	20.25
1-125293	NE8	12-24	34.77	1-125602	SE6	0-12	7.46
1-125296	NW13	None	111.00	1-125603	SE6	0-12	21.22
1-125300	NW13	None	21.50	1-133553	D6	12	39.82
1-125302	NW13	None	7.10	1-133555	C4	12	54.44
1-125352	SE2	12-24	12.52	1-133556	B8	38	32.10
1-125392	NE6X	12-24	14.85	1-133557	C4	5	33.10
1-125457	SE2	24-36	70.43	1-133558	B9	34	8.41
1-125475	SE2	12-24	17.71	1-133560	C6	12	13.41
1-125552	SE5	24-36	21.95	1-133561	C1	31	43.36

* Some of these very generalized artifacts are made of agate. Only a few of these are sketched in Figure 13, since they approximate the chert objects at Mnt-282, that is, they are virtually nondescript, but worked to form cutting edges.

TABLE 21

IDENTIFICATION OF 8 NONDESCRIPT CHOPPER-SCRAPPERS AT MNT-282*

UCMA number	Pit	Depth (ins.)	Some attempt at description
1-124859	B10	54	All show wear on edges. None of these is made of chert or nephrite. Each has crude, deep percussion flaking.
1-128786	C-D	72	
1-128788	C-D	72	
1-124780	A12	40	Fire-cracked rocks. The large flakes have sharp edges that may have been functional, but there are no definite signs of any use having been made of the likely cutting edges.
1-124857	B10	54	
1-124858	B10	54	
1-125258	C2	0-12	
1-125340	D1	12-24	

* None of these are illustrated, but they resemble in variety the samples of nondescript chopper-scrapers at Mnt-281 - illustrated in Figure 13.

TABLE 22

ATTEMPT AT CLASSIFYING 79 NONDESCRIPT CHOPPER-SCRAPERS AT MNT-281*

UCMA number	Pit	Depth (inches)	UCMA number	Pit	Depth (inches)
		6 Nephritic-jade core-choppers			
1-124946	NW4	72-84	1-124012	NW10	60-72
1-124984	SE1	None	1-125183	NE3	36
1-125002	SW3	48-60	1-133552	B9	8
		2 Nephritic-jade flake-scrapers			
1-125066	NE3	12-24	1-125389	NE10	36-48
		22 non-nephritic core-choppers			
1-124896	SW3	0-12	1-125234	No location	
1-124900	NW4	12-24	1-125299	NW13	None
1-124902	Surface		1-125306	SE2	None
1-124911	NW3	0-12	1-125309	NE2X	None
1-124944	NW10	36-48	1-125316	NE4	None
1-124947	SW3	36-48	1-125363	NE8	24-36
1-124990	NW9	36-48	1-125383	SE2	36-48
1-124991	NW9	36-48	1-125384	SE2	36-48
1-125079	NE5	48	1-125391	NE10	36-48
1-125085	NE3	12-24	1-125399	NE13	None
1-125146	NE5	36-48	1-125590	SE4	24-36
		49 non-nephritic flake-scrapers			
1-124887	NW7	0-12	1-125283	NE3	60-72
1-124888	NW1	12-24	1-125310	NE2X	None
1-124889	NW1	12-24	1-125321	NW12	0-24
1-124903	NW3	12-24	1-125324	NW12	0-24
1-124942	NW1	24-36	1-125326	NW13	None
1-124951	SW2	24-36	1-125353	SE2	12-24
1-124979	NE4	None	1-125364	NE8	24-36
1-125020	NW9	48-60	1-125369	NE8	48-60
1-125065	NE3	12-24	1-125370	NE8	48-60
1-125089	NW3	36-48	1-125371	NE8	48-60
1-125090	NW3	36-48	1-125372	NE8	48-60
1-125120	NE3	48-60	1-125380	NW13	None
1-125150	NE1	30	1-125390	NE10	36-48
1-125156	No location		1-125398	NE13	None
1-125181	NE1	66	1-125400	NE13	None
1-125205	NE3	36-48	1-125405	NE4X	None
1-125206	NE3	36-48	1-125414	SE2	24-36
1-125210	NE3	36-48	1-125456	SE2	24-36
1-125211	NE3	48-60	1-125567	SE2	36-48
1-125213	NE3	48-60	1-125574	SE3	24-36
1-125214	NE3	48-60	1-125591	SE4	24-36

TABLE 22 (Cont'd.)

UCMA number	Pit	Depth (inches)	UCMA number	Pit	Depth (inches)
1-125265	NE4	60-72	1-125599	No location	
1-125274	NE4	36-48	1-133546	C8	36
1-125282	NE3	60-72	1-133554	A9	28

* These are very generalized tools. Some appear to be fire-cracked or accidentally fractured by natural agencies, but many show very definite signs of heavy use on one or more of the sharp edges, and some look deliberately flaked. A few may be broken hammerstones, used secondarily as choppers or scrapers. They are very variable. A small sample of these tools is illustrated in Figure 13.