

exogamy, of which 6 were patrilocal, 7 matrilocal. A total of 16 patrilocal, 12 matrilocal. In addition, four marriages were between members of the same village. In one or two cases the married couple moved to a new locality.

Whether or not matrilocal residence was theoretically preferred, it is certain that practical considerations predominated and that such considerations favored residence at the home of either spouse about equally. Thus, couples might move to a more sparsely settled area. In the camp at Sühüyoï a brother and sister married a sister and brother and lived together as a single household. In one camp at Tu:na'va there were three male cousins with their wives, while at Watohad:<sup>a</sup> were four brothers, two of whom had brought wives. The presence of the chief at Tü'näva may have influenced his sister and two brothers to remain there after marrying.

#### WINNEMUCCA

Northern Paiute occupied Nevada west of the Sonoma and Hot Springs Mountains. Scraps of information indicate that, like the Shoshoni, they lived aboriginally in independent villages, but that the wars with the white man had caused a rapid consolidation into temporary bands.

CTh's family, living at Mill City, south of Winnemucca, seems to have foraged the local region, but claimed no ownership of food territory. They had local festivals under Boinöbi, dancing at Mill City or nearby at pine-nut camps. Lovelock, to the south, also had festivals. Communal shamanistic deer and antelope hunts were held under CTh's grandfather, who charmed both species.

CTh denied pseudo parallel-cousin marriage, polyandry, and marriage by abduction. His reliability, however, is not unquestioned.

#### WESTERN INDEPENDENT SHOSHONI VILLAGES

##### LIDA AND VICINITY

Separate treatment of the Lida region is somewhat arbitrary. Its population, though predominantly Shoshoni, was linked with Fish Lake Valley Paiute and the Gold Mountain, Stonewall Valley, and Clayton Valley Shoshoni through extensive intermarriage and cooperation in various activities. In short, it was not a distinct socio-political group and did not occupy a natural geographical area. It was but a link in the network of interrelated villages that extend throughout the entire Nevada Shoshoni area.

The present town of Lida lies at the eastern end of the Silver Peak Range at 6,037 feet at the base of Palmetto and Magruder Mountains, the latter called Ko:wa (cut with a knife), and is less than 10 miles

from the Northern Paiute village at Pigeon Springs. In the vicinity of Lida the country is fertile and the mountains are clad with pinyon and juniper trees, but broad, arid valleys broken by a few low ranges which seldom reached the pinyon belt stretch away to the north, east, and west. These deserts have little water and in native times supported but a few small encampments at favored spots. The population was so sparse that there are few informants today who know anything about it.

*Villages.*—Data on these are incomplete. The numbers correspond with those in figure 7:

29. Lida, Pauwahā<sup>a</sup>, five families, predominantly Shoshoni, but some speaking Northern Paiute.

30. Tule Canyon, Saiyogadü (tule place), 6,500 feet. At least one family formerly: Old Paty and his sister. Palmetto Fred was born here, but the relation of his family to the last is unknown.

31. Stonewall Mountain, camp called Tumbasai'uwi (tumbi, rock+pa, water+sai'uwi, fall down) probably at Stonewall Spring, 5,900 feet, on the northern side of Stonewall Mountain. Palmetto Fred's family, totaling seven persons, had lived here. These people gathered seeds mostly in the vicinity of Corral Spring.

Clayton Valley, 4,300 feet, perhaps had a few residents, though it was visited only temporarily for seeds and *Lycium* berries by people in neighboring regions. Cow Camp: called Tsaiiyugwi (tsaiyi or tsaip: ?, tule+yugwi, sitting).

22. Old Camp, a former village on the north side (?) of Gold Mountain (Tumbákai), at 7,500 feet (?). One family: Teiwanuitcuga<sup>putat</sup> (teiwani, a stick vertical in the ground+old man), his wife, two sons, two daughters; total, six. The sons went to Beatty and there married sisters (see "Beatty Shoshoni," below). The daughters married two brothers from the Belted Range and remained here part of the time. One brother was Gold Mountain Jack, Tundukwi<sup>a</sup> (brownish black); the other, Deaf Charlie, Niavl. These four marriages were all matrilineal. Niavi's daughter, Paiwungu<sup>wa</sup> (sandy wash), married BD and moved to Death Valley.

33. Montezuma. One family, that of LJB's maternal grandfather, lived at two springs near here, Kweva (kwe or kwina, north+pa, water) and Yudugiva (yudugi, sleet). The family consisted of his grandfather, grandmother, their two sons and four daughters; total, eight. One son went to Big Pine and married a Northern Paiute. One daughter went to the Kawich Mountains and married LJB's father's cousin. Another married LJB's father.

34. There were probably also a few people at three springs several miles east of Goldfield at about 5,800 feet, called Kamuva (Kamu, jack rabbit), Hugapa (hugapi, cane) or Wildhorse, and Wi:pa (wi:, knife) (LJB). It is possibly these springs that were called Matsum, where Matsum Sam lived (JS).

*Subsistence activities.*—These were carried on by Lida people within a short distance of their village. Pine nuts were gathered in company with Fish Lake Valley Paiute in the vicinity of Pigeon Spring or wherever there was abundance in the local mountains.

Several families usually camped together but gathered independently. If the local crop failed people went westward in the Silver Peak Range or some 40 miles south to the Grapevine, or even farther to the Kawich Mountains. These long journeys were facilitated by the introduction of horses. There was no ownership of pine-nut groves.

Within a few miles of Lida, on Magruder Mountain, brush was burned in the fall so that plants would grow better. These plants were principally üyüp: (*Chenopodium?*), waiyabi (probably *Elymus*, wheat grass), waciüp: (unidentified), and a root, tüi (unidentified). A few miles farther south, in Tule Canyon, they got *Mentzelia* and pasida (*Salvia*) seeds. Sand-bunch-grass seeds occurred in Stonewall Valley about 25 miles to the east. *Lycium* berries grew in great quantities in Clayton Valley and near Gold Point. Near Lida could be had seeds of hu:gi (probably wheat grass), *Sophia*, *Salvia*, and *Artemisia tridentata*. Greens called wiwünu, and roots, sego (*Brodiaea?*), also grew locally.

Except for pine nuts, Lida people did not go into the vicinity of Pigeon Springs or vice versa, because each had ample seeds locally.

Deer, sheep, antelope, and small game could be hunted within no great distance of Lida. There were few antelope, however, and no antelope shamans. Of communal hunts, little information was obtainable. JS knew of communal rabbit hunts only in comparatively recent times, held near Oasis in Fish Lake Valley.

*Festivals.*—Lida and neighboring camps seemed to have joined Fish Lake Valley people at Tünäva (Pigeon Springs) where Palmetto Dick and later Big Mouth Tom were directors. Gold Mountain, Stonewall Mountain, Palmetto, and Pigeon Springs people also participated in these. Sometimes, however, festivals were held at Oasis instead. That these were strictly native festival groupings, however, is not certain.

*Political organization.*—The villages in this area are unusually small and widely spaced. For all practical purposes, each family was the political unit, villages as such carrying on no important activities. If a family joined a festival it usually went to Pigeon Springs and submitted to the direction of Palmetto Dick and, later, Big Mouth and Captain Harry.

*Kinship and marriage.*—Information on these was scant. Marriage was, like that among Paiute, probably only with unrelated persons. The partial census shows the usual preference for multiple marriages between two families.

#### EASTERN CALIFORNIA

The Shoshoni of eastern California were slightly marginal with respect to those of Nevada, showing slight influence of adjoining

tribes. These Shoshoni occupied the northern halves of Death Valley and Panamint Valley, all of Saline Valley, the southern end of Eureka Valley, the southern shore of Owens Lake, the Koso Mountain region, the northern edge of the Mojave Desert, and the eastern slope of the Sierra Nevada Mountains. Owens Valley Paiute called them Sivinawwatü (sivi, east + ? + watü, place), AG, or Tavaduhütü<sup>u</sup>, GR. Fish Lake Valley Northern Paiute similarly called Shoshoni Sivinawwatü (eastern place), Tavai'nüw<sup>u</sup> (sun people), or Tavai'duhatü (sun place). Southern Paiute called them Koets.

Southern Paiute lived east of Death Valley, being mixed with Shoshoni at Ash Meadows. These Paiute called themselves Nu. Those at Ash Meadows were called Sivindü by Shoshoni (GG, TSp). Shoshoni at Ash Meadows were called Koyohuts<sup>u</sup> (GG) or Kwoiäxot'za (GH) by Shoshoni. Railroad Valley Shoshoni called Southern Paiute Tavinaï (tavi, sun, i. e., east+nai, dwellers).

The inhabitants of the southern end of Panamint Valley, the Argus Mountains, probably the region around Trona, and the territory to the south and west to an undetermined extent were called Mugunüwü (GG, TSp, TS, SS, TSt). They were mixed with Shoshoni in at least the central part of Panamint Valley and, perhaps, in the vicinity of Trona. The latter region was called Üwā'gatü and its inhabitants Owa'dzi. The Mugunüwü were unquestionably Kawaiisü, as the vocabulary,<sup>7</sup> (pp. 274-275) corresponds with Kroeber's Kawaiisü vocabulary from the region of Tejon and Tehachapi, though it shows slight affiliation also with his Chemehuevi (1907, pp. 68, 71-89). Kroeber's Shikaviyam, Sikauyam or Kosho vocabulary from Koso Mountains, southeast of Owens Lake, is clearly Shoshoni and is very similar to the present vocabularies from Little Lake, Panamint Valley, and Lida Shoshoni (pp. 280-281).

The probable derivation of Mugunüwü is mugu, point+müwü, people. This seems to have been taken either from Telescope Peak in the Panamint Mountains, which was called Mugudoya (mugu+doyavi, mountain) or Kaiguta, or from the Argus Mountains, called Mugu or Tinda'vu. AH and MHo, Southern Paiute at Ash Meadows, however, called these people Panümünt and BD, Death Valley Shoshoni, called them Panamint, but were not able to translate these words.

Probably Tübatulabal adjoined the Shoshoni on the south, occupying part of the Mojave Desert west of the Kawaiisü and extending across the Sierra Nevada Mountains. The division of this region between Tübatulabal and Kawaiisü, however, is not certain. Little Lake Shoshoni called the Tübatulabal Nawavite or Wavite, trans-

<sup>7</sup> Given by TSp, who is one-half white, one-quarter Shoshoni, one-quarter Mugunüwü and resides in Grapevine Canyon in the Sierra Nevada Mountains. There is said to be only one other surviving Mugunüwü, Long Jim, living in Pahrump Valley, Nevada.



lated "tough" or "mean." Owens Valley Paiute called the people on the western slope of the southern Sierra Nevada Mountains, who were probably Tübatulabal, Wawa'" or Tübadüka (pine-nut eaters).

The geographical variation of the Shoshoni habitat in eastern California probably exceeds that of any other area of equal size in North America. Its life zones range from lower Sonoran in the valley bottoms, including Death Valley, part of which lies below sea level (pl. 1, *c*), to the Boreal zone in the Panamint and Sierra Nevada Mountains. So large a proportion of it consists of arid and infertile valleys, however, that the simple Shoshoni hunting and gathering economy supported only a very sparse population.

The main foods were vegetable. GR rated pine nuts as most important because in years of good harvest enough were gathered to last through most of the winter, whereas other seeds were ordinarily consumed within a few weeks or, at most, 2 months. Next to pine nuts, he rated *Mentzelia, tonopuda* (unidentified species), and *Salvia* in the order named. These occurred in the mountains. Also of importance were *Oryzopsis* (sand bunch grass) seeds, occurring in mountains and somewhat in valleys, acorns near the foot of the Sierra Nevada Mountains west of Olancho, *Lycium* berries in the valley flats, especially near the Koso Mountains, and several unidentified species, mostly in the mountains. Mesquite (*Prosopis glandulosa* Torr.) grew in limited areas in low portions of Saline, Panamint, and Death Valley, where it was of some importance. In addition, foods listed by Coville for Death and Panamint Valleys include: Seeds of devil's pin cushion (*Echinocactus*), reed (*Phragmites*), buds of Joshua trees growing especially in the Mojave Desert, seeds of evening primrose, and greens of large crucifers. Soon after the arrival of the white man a small amount of horticulture was introduced to Death Valley and Panamint Valley.

*Subsistence activities.*—Economic life rested upon a particularism of the family, though several families might travel together, especially when gathering pine nuts. Communal rabbit hunts and occasionally antelope hunts were the only activities involving extensive joint effort; these usually involved several cooperating villages.

For the greater part of the year each family pursued subsistence activities independently. It usually wintered in the same village, though various circumstances might take it elsewhere. In the course of a normal year it ranged over a certain minimum food area, the limits of which depended upon occurrence of essential foods, their abundance that year, and the distance that it was possible to travel on foot with one's entire family. Inhabitants of neighboring villages naturally tended to forage the same general terrain, though each exploited most extensively the country nearest it. The limited sup-

plies of food and poor transportation facilities prevented all inhabitants of a given area from living together in a single large village. Often villagers from different valleys foraged near one another in the same mountain seed area, though each family gathered seeds independently. For rabbit drives, however, some of these families went elsewhere and might cooperate with people from the opposite side of their own valley. For pine nuts they might go many miles away if the crop were promising.

Apparently family ownership of pine-nut plots existed only among Saline Valley Shoshoni, adjoining Owens Valley Paiute, from whom it may have been borrowed.

After harvesting pine nuts, some nuts were carried down to the winter villages, which were located on streams in the low, warm valleys; the remaining nuts were cached in the mountains.<sup>8</sup> Robbery of cached nuts, even by brothers or sisters of the owners, led to fights with sticks and stones but no killing. Permission to open caches, however, was sometimes extended to relatives.

When stored seeds were exhausted in March or April, and hunger became acute, families left the winter villages. They procured greens, which were the first food plants to be available, and hunted antelope and rabbits. In May some people went to Owens Lake for larvae. During the summer different seeds ripened in various places, mostly in the mountains. This required considerable travel from place to place, as observation or information from other families informed them of the whereabouts of good crops. Journeys into the mountains were a welcome escape from the excessive heat of the lower valleys. Finally, in the fall, families which happened to be in certain areas assembled for communal rabbit drives, went for pine nuts, held a festival-mourning ceremony, then returned to the winter village.

*Property.*—The linguistic boundary between the Owens Valley Paiute and Shoshoni tended to divide areas of property concepts. The Paiute family and band ownership of food areas were largely unknown to Shoshoni.

GG, BD, GH, and TSt all denied any form of family, village, or band ownership of seed lands. Although people from certain localities habitually exploited the same areas, anyone was privileged to utilize territory ordinarily visited by other people. There is some evidence that Saline Valley families, like those in Owens Valley, owned pine-nut lands and resented trespass. Other Shoshoni emphatically denied such property rights.

<sup>8</sup> See descriptions of pine-nut gathering in this region by Dutcher, 1893, and Coville, 1892.

JN said his grandfather had described fights in Death Valley because of trespass on mesquite lands, the fights involving merely shouting and stone throwing. This probably applied only to Furnace Creek, for the Southern Paiute of Ash Meadows and Pahrump Valley had definite concepts of family ownership of certain seed lands and may have introduced them to Death Valley.

Hunting areas also were claimed by no one, even though men habitually visited mountains near their villages.

An explanation of the Shoshoni lack of ownership of food areas will be offered in a concluding section on property.

All other natural resources, including water, were also entirely free to anyone. No doubt the extensive seasonal travels of families and the constant shifting of residence, even from one valley to another, prevented habitual utilization and hence ownership of village sites.

Gathered seeds were private property. Women shared them only with their husbands, children, and sometimes parents whom they supported. Brothers, sisters, and, upon occasion, other relatives were presented gifts of food.

Large game, on the other hand, was shared communally with all village members, whether they were related or not. The hunter was privileged to keep only the skin and some special portion of the animal.

Houses were built by men, but in case of divorce usually kept by the one who remained. At death, houses were burned or abandoned. Other goods belonged to their makers or users.

There was no question of inheritance, for the meager number of material objects were burned at the owner's death, so that potential heirs received nothing whatever.

*Festivals.*—The fall festival, which included the circle dance, gambling, and annual mourning observances, was the only noneconomic motive for large numbers of persons to assemble. There were no other group ceremonies. Small groups of people who happened to be in the same vicinity might hold a minor circle dance during the summer, dancing one to several nights. The fall festivals, however, were annual events, enlisting people from a considerable territory. The temporarily increased food supply following the communal rabbit hunt and pine-nut harvest supported these large aggregates for a brief time.

The location of fall festivals depended partly upon the whereabouts of large villages, which acted as hosts, partly upon the annual occurrence of good seed crops, especially pine nuts. There seems to have been considerable reciprocity between certain villages which acted

as hosts in alternate years. It had somewhat crystallized in the institution of the exhibition dance, performed by visitors who were paid by their hosts.

The main gatherings recorded were at Koso Hot Springs, Olancha which drew many Northern Paiute as well as Shoshoni, Saline Valley or Sigai (below), and northern Death Valley. People participated in these with great enthusiasm as they afforded an opportunity to visit and revel with families seen only rarely or not at all in the course of the year. As new factors introduced by the white man made it possible to travel farther there were fewer but larger festivals. They were abandoned a few years ago.

Direction of festivals was the most important task of the "chiefs."

*Political organization and chiefs.*—Family particularism prevailed throughout so great a part of the year and an individual's behavior was governed to so large an extent by kinship that political controls were not extensive.

Beyond the family, allegiance was primarily to the other inhabitants of the winter village. One most frequently cooperated with them in games, dances, and hunting. He was designated by the name of his village. But he did not share with them exclusive rights to any food areas. And his residence was always liable to change for various reasons. Information was not obtainable on village headmen, but there is little doubt that, like the headmen in Nevada Shoshoni villages, their functions did not extend beyond keeping informed on the few matters of village interest, such as the ripening of pine nuts.

Intervillage alliances were too temporary and shifting to permit them to form politically stable aggregates or bands. In spite of the fact that the valleys were definitely delimited by high mountain ranges so as to give an apparent topographic predisposition to band formation, villages did not always associate with their neighbors in cooperative enterprises. Local crop failures or abundance of pine nuts elsewhere took families away from their customary haunts, so that they drove rabbits or participated in festivals with very different people from year to year.

The occasions for cooperation, moreover, were limited to rabbit drives, some antelope hunts, and fall festivals, which gave but brief unity to participants. And even festivals were impossible when a poor year afforded insufficient food to maintain them.

In spite of disruptive factors, however, certain villages naturally associated more often with one another than with others. The areas embracing such villages are called districts. The unity within some of these approached true band organization and the people were even



known by a collective name, for example, Sigai or Ko'önzi (see below).<sup>9</sup>

Chiefs controlled intervillage activities, but it is clear that the scope of their powers varied and even overlapped in some ways. A chief was called pakwi'navi (GG), pokwi'navi (BD), usually translated as "big talker," though BD also gave nangawin (talker). There seems to have been at least two in each district, either working jointly or perhaps specializing, one in hunting, the other in festivals.

Saline Valley had two, Caesar and Tom Hunter, both of whom died many years ago. Tom Hunter probably succeeded his father. Together, they directed rabbit drives and fall festivals. When these were held in Saline Valley people from Sigai and from near Eureka Valley participated. When held in Sigai, Death Valley as well as Saline Valley people often attended.

Little information was obtainable about chiefs in the Koso Mountain region, though there seems to have been one for communal rabbit and antelope hunts and another for festivals.

In upper Death Valley, BD's grandfather and later BD's father, Dock, living at Grapevine Canyon, directed rabbit drives. He was assisted by Pete Sam's father, who lived at Surveyor's Well. The latter directed festivals, assisted by Dock. When Beatty or Sigai people joined Death Valley people in these activities they were under Dock and Pete Sam's father.

Upper Panamint Valley seems to have held its own cooperative hunts and dances or to have joined Saline Valley or Death Valley people when convenient. No data are available on lower Panamint Valley, occupied by Kawaiisü.

Similarly, Death Valley south of Furnace Creek was occupied by mixed groups, especially Kawaiisü, and its political affiliations are undetermined. Furnace Creek was, from all accounts, independent of the villages in the upper part of the valley, though it no doubt associated with them at times.

Though the chief's power was limited, chieftainship was regarded as a real office to be inherited patrilineally. Lacking an acceptable son, the chief was succeeded by a brother or other male relative.

**SALINE VALLEY.**—This district had an extraordinary range of life zones.

The deep valley floor, 1,100 feet, is in the Lower Sonoran zone. It is mild in winter and almost unbearably hot in summer. It supports a little mesquite but has few edible seed annuals, the majority of its

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<sup>9</sup> For the people of Koso Mountains, Panamint Valley, and Death Valley, Kroeber, 1925: 589, gives Koso, Kosho, Panamint, Shikaviyam, Sikalum, Shikaich, Kaich, Kwüts, Sosoni, and Shoshone. None of these except Shoshoni was known to informants in the area. They called themselves nuwu, people. Shoshoni they could not explain. Koso is Northern Paiute for fire.

sparse flora being extremely xerophytic and unfit for human consumption. The bordering mountains, especially to the north and south, are in the Upper Sonoran and Transitional zones, where cooler temperatures make summer living possible and where greater precipitation supports many flowering annuals, which supply the greater part of plant foods. Pine nuts are also abundant in these mountains.

The high and massive Inyo Range which bounds Saline Valley on the west is too precipitous to be readily inhabitable but affords the greatest range of life zones. Better watered than ranges to the east, it supports many square miles of pine-nut trees. Its crest, however, extends above 10,000 feet into the Canadian and even Hudsonian zones, thus capturing greater precipitation, supporting a variety of flora, and feeding the one stream that reaches the valley floor. The vast area of the range and the greater vegetation maintained in turn many deer, which are largely lacking in the ranges to the east, and large numbers of mountain sheep.

This remarkable variety of habitat zones and of species of both plants and animals within a comparatively small area enabled the Saline Valley people to maintain existence securely if not abundantly without having to exploit an inconveniently large area.

This district embraced about 1,080 square miles and, according to the census, had about 65 persons, or 1 per 16.6 square miles. The aboriginal population may have been denser.

There were four main winter villages in three subdivisions of the district. The subdivisions were: A, Saline Valley; B, the mountains between Saline Valley and Eureka Valley; and, C, the mountains between Saline, Panamint, and Death Valleys. The inhabitants of each tended to forage within their own subdivision, though they sometimes ranged more widely. People from the entire district, however, assembled for rabbit drives and for fall festivals, and associated with one another at least more often than with people from elsewhere. Two men, Caesar and Tom Hunter, who acted jointly, were chiefs for these communal undertakings. There was, however, no common name for the entire district.

The villages as numbered on map, figure 7, were:

A. 35, the main village and division of the district was Saline Valley, Ko'° (deep place, descriptive of Saline Valley, which is very deep), elevation 1,200 feet. The people were called Ko'önzi. The village lay in the midst of a barren, infertile expanse of valley at the mouth of Hunter's Canyon, where the stream maintains some mesquite and a few other edible plants.

Its inhabitants exploited the surrounding mountains, especially the Inyo Range to the west, where deer and pine nuts could be had. SS claimed that pine-nut tracts lay on the Saline Valley side of the Inyo Mountains and in the vicinity of Waucoba Mountain and that,

like those of the Owens Valley Paiute, they were family owned. Trespass led to argument but not to serious fights. Caesar was said to extend permission to outsiders to gather on them without consulting their owners. The last point is doubtful. GG thought that there was no ownership of pine-nut areas. It seems clear that, however former ownership was conceived, families went to the same fairly well-defined tracts each year and that, as SS asserted, the entire family "inherited" them. In years of good crops, however, any tract afforded far more nuts than the owners could possibly gather in the brief period between the time when the nuts ripened and when they fell from the trees and winter cold and snow drove people down to the winter village. It is entirely understandable that, in such years, outsiders should be allowed freely to utilize the tracts. For this reason the Saline Valley people frequently gathered in the Pauwüji or Eureka Valley area to the north and in Sigai to the south. Nelson observed people from Hunter's Canyon in 1891 gathering at the latter place. Occasionally they gathered in the Koso Mountain district. SS thought permission of the Koso chief was necessary; GG said people went there as they pleased, without asking anyone.

The Ko<sup>o</sup> villagers obtained mesquite from the vicinity of their winter village. Other wild seeds, such as sand grass, grew in certain parts of the valley, but most seeds occurred in the surrounding mountains. Often they went into the Sigai country and other parts of the mountains separating Saline and Death Valleys.

Game, distinctly of secondary importance in Shoshoni economy but requiring considerable time of hunters, occurred largely to the north and west. Deer were procured in the Inyo Mountains and antelope in the lower ranges north of Saline Valley. There is no evidence of ownership of hunting territory, although certain accessible regions were naturally utilized most often.

Other foods were procured in various places but did not as a rule require extensive travel. Rats, mice, chuckwallas, rabbits, and birds could be hunted in all parts of the territory. Occasionally, however, trips were made, probably by single families, to Owens Lake for larvae or for duck hunting.

Saline Valley yields great quantities of salt which was traded for goods or shell money to Owens Valley Paiute, who in turn often traded it across the Sierra Nevada Mountains.

Rabbit drives were held in connection with fall festivals. Usually people from throughout the district assembled for them. Sometimes, however, individuals took part in drives in the Koso Mountain or Death Valley districts.

BD said the Ko<sup>o</sup> village as he remembered it about 50 or 60 years ago comprised five families or camps whose heads were as follows: (1) Caesar, the chief, (2) Caesar's father, who had been chief before

him, (3) Wakin, (4) Tom Hunter, the other chief, (5) Patu'ku. If, as in Fish Lake Valley, the average family consisted of 6 persons, the total population was not over 30 individuals. BB thought this village had had a communal sweat house, like those in Owens Valley.

Some place names in Saline Valley territory are:

Upper Warm Spring, Pabu'inü (water reservoir ?).

Lower Warm Spring, Puigët:ü (green rock).

Dodd's Spring, Bast:\* (?).

Willow Spring, Honovëgwa'si (a yellowish gravel), little frequented except as temporary camp on route to Waucoba Mountain for pine nuts.

Paiute Canyon Spring (?), Yadadüp (kind of rock), a camping place on pine-nut trips.

Cerro Gordo Springs, Wiva"\* (?), a pine-nut camp.

Burro Spring, Yëtum'ba (?), a pine-nut camp.

Unnamed spring east of Burro Spring, Pakwü'tsi (?), a pine-nut camp.

Quartz Spring, Pambu'lva (?), little frequented.

Jackass Spring, Ica,"wumba (ica" coyote+pa, water), a pine-nut and seed camp.

Inyo Mountains, Nününop:ü (high), mythologically the only land remaining above the waters of the flood.

Ubehebe Peak, Tinguhu (tinguta, play+?) or toyaviapi:u (mountain—big) has little of value.

Dry Mountain, Sü:ndugai (?).

Tin Mountain, Sia (gravel).

Vicinity of Keeler on Owens Lake, Tono'musa (tonovi, greasewood+—musa, sweat house ?) or Tonomädü, a spring, visited during trips for larvae and ducks in the lake.

Waucoba Mountain (waucova, pine tree, Paiute word), Wungo (juniper) doyavi (mountain).

B. The second subdivision, Pauwü'ji (BD) or Pauwü'jiji (GG), lay between Saline and Eureka Valleys, where low mountains were suitable for winter dwellings. The principal and perhaps sole village was probably at Waucoba Spring, Icam'ba ("coyote water") (36), on the eastern slope of Waucoba Mountain at about 5,600 feet. There may have been another camp at Lead Canyon Spring, Pau'onzi, from which the area was named. GG called the people Pau'on-jüjü. These people procured most foods locally. They gathered pine nuts and hunted deer in the Inyo Mountains immediately to the west. They procured seeds, antelope, and rabbits in the low hills around them and got some seeds also in Eureka Valley to the north and in Saline Valley.

As Eureka Valley is practically waterless, it could support no permanent residents, but it had important quantities of sand-grass seed and págampi (unidentified). Water was obtained from a well near the sand dunes in the southern end of the valley. It is doubtful, however, whether temporary visits by small parties could account for the vast archeological site which stretches for several miles along the



northern foot of the dunes on the edge of the playa. The site has untold quantities of flint and obsidian chips but relatively few artifacts, except some spherical stone mortars of the type commonly used by Shoshoni for grinding mesquite. But there is now no mesquite in the valley. An extended search produced no pottery, which is usually present at Shoshoni and Paiute sites in this region. The mortars, however, are more distinctive of Shoshoni than of Paiute.

C. Sigai (flat, on the mountain top) or Sigai watü, the mountains separating Saline, Death, and Panamint Valleys. People called Sigaitsi. Two villages. One at Goldbelt Spring, Tuhu (black ?) (37), at about 5,000 feet, the people called Tuhutsi; the other at the springs in Cottonwood Canyon, which runs westward from Death Valley, called Navadü (big canyon) (38), at about 3,700 feet, the people called Navadünzi.

Sigai people procured pine nuts, various seeds, rabbits, and mountain sheep in their own territory. When local seeds were unusually abundant visitors came from Saline Valley and sometimes from Surveyor's Well to gather them near Navadü. SS thought rabbit drives were held independent of Saline Valley; BD, that Saline Valley people always came to Sigai for rabbit drives.

For festivals Sigai people either went to Saline Valley or Saline Valley people came to Sigai, but both places never held them simultaneously. Caesar and Tom Hunter (and GG said George Button's wife's father's father whose identity is otherwise undetermined) directed festivals at both places. Chiefs' powers were definitely extended and groups more closely associated in post-Caucasian days.

The village census given by BD for perhaps 1890 showed:

Navadü, 2 families totaling 14 persons, as follows: One camp, Pete Sam's father (who later went to Surveyor's Well, Ohyu, in Death Valley and became director of the fall festival and mourning ceremony); his wife from Ohyu; their sons, Pete and Johnny, each of whom married a Saline Valley woman in the levirate (the only levirate recorded in this district) and lived at her home; a daughter, May, who later married. The other camp: Jackass Sam (Pete Sam's mother's brother from Ohyu); his wife, two sons, two daughters, his wife's two sisters; the husband of one of the sisters from Saline Valley. This makes the unusual total of nine persons in one house.

Tuhu, one family as follows: Tuhudzugo (tuhu+tsugoputsi, old man; Caesar's paternal grandfather); his wife, probably from Sigai, four daughters and one son.

These data accord more or less with Nelson's observations in 1891 when he found two or three families on Cottonwood Creek.

These few Sigai marriages were probably all exogamous by village and show a preference for matrilocal residence.

LITTLE LAKE AND KOSO MOUNTAINS.—This district, known as Kuhwiji, is a relatively large subsistence area, embracing about 1,000 square miles and centering in the Koso Mountains, where the greater

precipitation in the Upper Sonoran and Transitional zones supported most of the important food plants, but including also the surrounding plains and the eastern escarpment of the Sierra Nevada. The inhabitants, who lived in three winter villages, exploited the entire territory, but lacked sufficient intervillage cohesion to constitute a true band.

*Villages.*—The four main villages as numbered in figure 7 were:

39. Pagunda (lake), Little Lake, at 2,948 feet; one of the largest, GG thought with 50 to 60 persons in 1870. People called Pagundünzi.

40. Mūa'ta (boiling), Coso Hot Springs, at 3,635 feet; formerly 100 or more people. Visited by Northern Paiute and Shoshone for medicinal water, which was used for bathing and drinking.

41. Ūyuwum'ba (a black rock ?), springs about 5 miles south of Darwin, probably Cold Spring at about 6,200 feet.

16. Pakwa'si (probably pa, water +kwasi, end) at Alancha, at 3,700 feet; people called Pakwasit<sup>1</sup>. Paiute and Shoshoni intermarried here.

Some place names:

Sierra Nevada Mountains, Manovū putoyavi<sup>10</sup> (long mountain).

Owens Lake, Patsiata (any large lake); called by Paiute, Panowi.

Upper Centennial Spring, Teia'navadū (rose bush place).

Lower Centennial Spring, Teia'bugwai (teiabip; many rose bushes).

Black Spring, Tuwa'dambahwatū (tuwada, a bush+pa, water+watū, place).

Crystal Spring, Teivūgund:ū (?).

Springs near Millspaugh, Pa<sup>n</sup> (water).

Cold Springs, south of Darwin, Ogwedū, Ogwaidū (creek), a place visited frequently in summer, but no winter village.

Springs by Maturango Peak:

Paga'wagandū (paid:<sup>n</sup>, watering place for animals).

Tuhupa (from hupai'hya, shade ?, of the mountain+pa, water).

Pag<sup>w</sup>o'i (?).

Tuḡwuvi (?).

Spring in the canyon running into Panamint Valley, east of Darwin, Ogwedū (creek).

Haiwee Springs, Hugwata (?).

Springs near last, Icamba (coyote water).

Rose Spring, Tunahada (?).

*Subsistence activities.*—The following sketch of seasonal activities is largely from the point of view of the inhabitants of the Koso Hot Springs village. In winter they dwelt in pit houses, eating stored seeds and hunting rabbits. In April some families moved to Haiwee Springs, Hugwata, about 12 miles away, where they spent 1 or 2 months, finishing up any stored seeds and gathering greens. In June they usually went to Cold Spring, where a few people sometimes wintered and hunted rabbits. This hunting was done by individual men using spring-pole traps. Meanwhile, a few families sometimes joined together for a communal antelope hunt.

Antelope were most numerous in Indian Wells Valley, near Brown, about 10 miles south of Little Lake. There were also some just south

of Owens Lake and at the northern end of Saline Valley. Drives near Brown involved mostly Little Lake Shoshoni and some Nawa-vite (probably Tübatulabal), their neighbors to the south. A few Saline Valley Shoshoni might participate, but the trip of nearly 75 miles was generally too long.

The antelope hunt director announced the hunt several days in advance. Antelope were driven by 8 or 10 men, perhaps aided by fire, into a corral built of posts spaced about 20 feet apart and covered with brush. The corral had a wide opening but no wings. As the animals milled around inside, archers stationed between the posts shot them. There was no shaman.

In midsummer some families might go into Saline Valley and occasionally into Death Valley to gather mesquite. They removed the seeds and ground the bean pulp into flour which could be readily transported. But if they had gotten any considerable surplus it was cached to be procured on subsequent trips.

Between July and September most families wandered in the Koso Mountains, which, lying in the zone of greatest plant growth, afforded many different seeds. They remained as near their winter villages as possible in order that trips during winter to seed caches should not be too long. But if certain species were sufficiently abundant elsewhere, they went several days' travel from the winter village to get them.

During September or October, if they were not already in the Koso Mountains, families ordinarily went there for pine nuts. Large crowds preferred to travel together on these trips, under the direction of the village chief. Sometimes the Koso Springs villagers joined the people from Üyuwumba, the Cold Spring village, and if the crop in that vicinity were unusually heavy they might even winter there. If the Koso Mountain yield were small, some families might go into the Panamint Mountains, where perhaps they kept company with Death Valley Shoshoni who had come for the same reason.

In the fall some families also went to Owens Lake to hunt ducks. Although a few minor rabbit drives were held during the summer, this was the season for large drives.

For large rabbit drives, families who happened to be in the vicinity of places with numerous rabbits cooperated. The main drives were at Rose Valley, Darwin Wash, the vicinity of Cold Spring, Little Lake, and Olanca. Visitors came from a convenient distance to join these. For example, people from Keeler came 25 miles and people from Saline Valley came perhaps 50 miles to Olanca, but Panamint Valley was too far away. Panamint people either had local drives or joined one closer to home.

In the drives they used one or two nets, each about 2 feet high and 100 or more feet long, propped at intervals with sticks. Eight or

ten men beat the brush, driving the rabbits into the nets, while the owners remained behind their nets to dispatch the ensnared animals with clubs. There is some question about directors of these drives. BD thought district chiefs were in charge; GG that net owners were directors and divided the kill.

The annual round of food quest, which was scarcely sufficiently fixed to be a routine, varied in different ways. Mountain sheep might be hunted by individuals in the Koso Mountains or the Sierra Nevada and deer in the Sierra Nevada. Fish were taken in Rose Valley and, with poison, in Little Lake. Larvae were procured in Owens Lake. Caterpillars (piüga) could be had on the ground around Koso Springs, Little Lake, and elsewhere. Other animals eaten were bear, badger, chuckwalla, gopher, mice, rats, doves, eagles, hawks, crows, snakes, mountain lions, wildcats, but not coyotes, wolves, frogs, magpies, or grasshoppers. To vary the vegetable diet, acorns might be procured from the eastern foot of the Sierra Nevada.

Relative scarcity of animals made meat a minor food. Dried rabbits would not keep over 2 weeks. Large game meat, cut into thin slices and dried in trees, would keep longer but was usually consumed quickly. Hunting was of relatively greater importance during seed shortage, but considerable reliance was placed on rodents. Even in good years stored seeds rarely lasted more than a year. GG's grandmother recalled a period of several months when a complete lack of seeds, rabbits, or other important foods caused several deaths.

*Warfare.*—Although Kuhwiji adjoined several other tribal groups, GG thought they had warred with none. He recalled but one fight, when some people from far south invaded the country. The fight occurred at Coso Hot Springs. The invaders were all killed.

*Mourning ceremony.*—There was no large mourning ceremony to unite different villages. GG thought that each year property, saved from funerals, was burned simultaneously for several dead, but that only close neighbors participated.

*Sweat houses.*—The sweat house probably served as a village meeting house, but information about it is lacking.

*Marriage.*—An extensive genealogy, covering several generations, bears out informant testimony that any relationship was a bar to marriage. Village endogamy was permissible if persons were unrelated. Of 21 recorded marriages, including some in neighboring districts, 10 were exogamous by district, 8 endogamous by district. Of the last, at least three were exogamous by village. People shifted residence so often that villages usually consisted of unrelated families.

Parents arranged their children's marriages, the man's parents paying shell money to the girl's parents, the latter reciprocating with buckskins and food.



Post-marital residence was theoretically matrilocal until the birth of the first child. After that, it was independent, though preferably patrilocal, because a man preferred his home territory for hunting. There was no strict rule about this, however, and many factors entered into the choice. Of recorded marriages, 3 were patrilocal, 10 matrilocal, 3 in a new locality, 4 in the same locality where both had lived.

Intertribal marriages were: Two with Mugunüwü (Kawaiisü), one with Wavite (Tübatulabal), one with Owens Valley Paiute, four with white men.

The levirate and sororate were both practiced. In fact, to avoid following them upon the death of a spouse, a payment to the parents-in-law was required. But only one case of the levirate is shown in the genealogies.

Though kinship terms accord with marriage of a brother and sister to sister and brother and of several brothers to several sisters, no instance of these was shown in the genealogies.

PANAMINT VALLEY.—Little information is available from this locality. The valley proper was so low (1,000 to 1,500 feet) and so arid that the native population was extremely sparse. There is virtually no water within the valley where winter villages could have been located. The Panamint and Argus Ranges which bound it on the east and west respectively have many springs which were frequented between spring and fall by people from neighboring valleys but had few winter residents.

North of Ballarat, Panamint Valley was predominantly Shoshoni with some admixture of Kawaiisü.<sup>10</sup> South of Ballarat it was largely Kawaiisü. The principal and probably only village within the northern part of the valley was at Warm Springs, 1,100 feet, called Ha:uta (village 42 in fig. 7). This entire portion of the valley was also called Ha:uta. The people were called Ha:utans'.

Wildrose Springs, Su<sup>u</sup>navadu (su:vi, willow+navadu, flat), at about 4,500 feet in the Panamint Mountains about 8 miles north of Ha:uta (43), also had a few winter residents, called Su<sup>u</sup>navadunzi.

*Subsistence activities.*—Subsistence activities could be carried on by these people largely within a short distance of their villages. Though the valley was devoid of important foods of any kind, except some mesquite which grew at Ha:uta and at Indian Ranch (the latter had no running water until a well was recently dug), the Panamint Range surpasses 11,000 feet and provided many seeds, pine nuts, and mountain sheep. People went sometimes, however, near Matu-rango Peak in the Argus Mountains for chia or to the Koso Moun-

<sup>10</sup> Nelson in 1891 observed about 100 Indians in upper Panamint Valley whose language was the same as that in Saline Valley, which is Shoshoni.

tains for sand bunch grass seed. Dutcher saw families from Panamint Valley in 1893 gathering pine nuts in the mountains between Saline and Panamint Valleys, that is, in Sigai.

*Political organization.*—It is improbable that any important communal activities were held within Panamint Valley. Saline and Death Valleys were within convenient distance for festivals. Panamint Tom, however, seems, at least in post-Caucasian times, to have gained some prominence in connection with hostilities against the white man. Whether he was a Kawaiisü is uncertain. TSt thought that he had been chief of the Death Valley Kawaiisü.

*Marriage.*—Parents of young men and women seem to have taken less hand here than among groups to the west in arranging marriages. A man desiring to marry a girl gave her perhaps 20 to 30 dollars, which she gave to her mother, who reciprocated with food to the man's mother.

Marriage was matrilineal until the first child was born, then independent.

To avoid the sororate a man paid money to his wife's parents, and they in turn gave him seeds and food. If he failed to do so, his deceased wife's mother told his new wife he had not paid. A woman similarly paid the mother of her deceased husband to avoid the levirate.

There was little polygyny, no mother-in-law avoidance.

Some place names:

Emigrant Springs, Tingal'ni (cave), probably a temporary seed-gathering camp of Ha:utans'.

Springs near Modoc mine, Hunupa (hunupi, canyon+pa), seldom visited.

Springs by Snow Canyon, Tahahunü (tahavi, snow+canyon ?), seldom visited.

Springs by Wood Canyon, Pipum'ba or Pibump': (a plant), seldom visited.

Spring in Revenue Canyon, Tusi'gaba or Tusi'gava (a canyon that narrows sharply), the most important camp on the rare trips made by Ha:utans' to the Argus Mountains for seeds.

Springs in Upper Shepherd Canyon, Nia'va (?), visited occasionally for *Mentzelia*, chia, and sand-grass seeds.

Springs in Lower Shepherd Canyon, Taka'goba (taka'go, valley quail), a camping place on trips.

The five springs in upper Tuber Canyon were pine-nut camps.

**NORTHERN DEATH VALLEY.**—Death Valley, stretching more than 100 miles north and south, lying partly below sea level, and bounded partly on the west by the lofty Panamint Range, has an extraordinarily varied natural landscape.

The valley floor, much of which is more than 250 feet below sea level, is incredibly arid (pl. 1, *c*) and has summer temperatures ranging commonly up to 130°, with a record of close to 140°. It

and the bounding foothills fall into the Lower Sonoran life zone, among whose limited plant population Jepson (p. 12) includes: *Phyllogonum luteolum*, *Boerhaavia annulata*, *Oxystylis lutea*, *Astragalus atratus* var. *panamintensis*, *Brickellia knappiana*, *Amphiachyris fremontii*, *Viguiera reticulata*, and *Enceliopsis argophylla* var. *grandiflora*, most of which are endemic and none of use for food. Probably the only important food species on the valley floor is mesquite, which grows in limited quantities at springs.

Most of the bounding mountain ranges rise into the Upper Sonoran zone and provided a few species of edible seeds. But vast areas, especially of the Funeral and Black Ranges, which scarcely exceed 5,000 feet, were practically worthless for gathering and were devoid of large game. The neighboring ranges extend upward into the tree zone at only three places. One of these was the Sigai region in the Panamint Range north of Darwin. It was more accessible to and was therefore utilized more habitually by the Sigai and Saline Valley people. The Grapevine Mountains, reaching to nearly 9,000 feet, form a massive block of pinyon-covered hills and were utilized by all the villages north of Furnace Creek. These and the comparatively treeless Tin and Dry Mountains to the west sheltered a small number of mountain sheep but no deer. The third high mountain area is the Panamint Range which bounds lower Death Valley on the west and culminates in Telescope Peak, 11,045 feet, which rises abruptly from below sea level to about timber line in the Boreal life zone. Except during the short winter when the residents of Furnace Creek and Lower Death Valley remained at water holes in the valley, they were driven by heat and virtual absence of foods in the valley floor into the cool Panamint or Grapevine Mountains. Here the various species of seeds and a limited amount of sheep hunting maintained them until pine nuts were ripe.

The distribution of population within Death Valley was also determined by water supply. Water is not only extremely scarce, but many springs are poisonous or undrinkably saline. At each usable source of water there were, therefore, winter residents, the number depending upon the amount of water and quantity of accessible foods.

North of Furnace Creek the three main villages were at Mesquite Springs, Grapevine Canyon, and Surveyor's Well. Their total population was 42, or 1 person to about 30 square miles. Though the census may be low, it is probably not much too low. These villages had no collective name for themselves, but TSt of Beatty called them Yo:gombi (flat, i. e., the valley floor). They were independent in most activities; in fact, their component families were independent throughout most of the year. Communal rabbit drives and fall festi-

vals, however, united villages temporarily with one another and in some measure with Beatty on the east and Sigai on the west.

*Villages.*—The following numbers correspond with those on figure 7:

44. Mahunu (from hunupi, canyon), springs in Grapevine Canyon and probably Grapevine Springs, about 2,500 to 3,000 feet. The people called Mahunutsi. BD gave the following census as remembered from his boyhood, about 75 years ago: 4 camps or families, totaling some 27 people, as follows:

BD's grandfather, born at Mahunu, and his wife from Cottonwood Canyon in Sigai.

BD's father, Dock, a shaman; BD's mother from Surveyor's Well; his mother's brother; BD; BD's brother and sister; also, BD's father's second or polygynous wife (BD's mother's sister), and her 2 children, both of whom died young.

BD's father's mother's sister (her husband from Lida had died); her daughter and daughter's husband from some other village; her three sons, Bob, Longhair John, and Jack; Bob's wife from Lida and his son; Longhair John's wife from Lida (but not related to Bob's wife).

Cold Mountain Jack and his family, which he moved back and forth between Grapevine Spring and Mesquite Spring, as he owned cultivated land at each place. His family consisted of his two polygynous wives who were sisters, Susy and Maggie from Grapevine Spring, and seven children. Susy had four children: a son and a daughter who died when young; Tule George who moved to Lida where he lived with his wife Tudi until she died, childless, then married Lizzie from Surveyor's Well and lived with her at Tule Canyon, also childless; Kittie, who married a Beatty man and lived at Tule Canyon and had two children (one died; the other, a daughter, married an Italian and had seven children). Maggie had two sons and a daughter, all of whom died young. This camp also included Susie's mother. The 10 individuals in this family occupied a single house.

45. Ohyu (mesquite), at Surveyor's Well, 60 feet below sea level. The people called Ohyutsi. BD's census gave 2 camps totaling 14 or 15 persons, as follows:

Ike Shaw's father, from Grapevine Canyon where Ike had been born; his father's second wife born at Ohyu; three daughters, all of whom died before marrying.

Tule George's father-in-law from near Telescope Peak in the Panamint Mountains; his mother-in-law born at Ohyu; their four daughters and three sons. Total, nine persons. This family is of interest because of its exceptional fertility. The oldest daughter, Anne, married an Ohyu (?) man and had two sons, one of whom died young. The next daughter married BD's half-brother, Shoshoni John, from Grapevine Canyon, and had 13 children, of whom 10 died. The third daughter was unmarried, but had a child who died. Lizzie, mentioned above, married Tule George at Tule Canyon. The oldest son, Cottonwood Frank, married Tule George's sister, Kittie, whose husband had died. This is the only reported case of a brother and sister marrying a sister and brother. Cottonwood Frank's daughter, Minnie, was unmarried, but, probably by several white men, she had seven children, of whom four died. The next son, Joe Button, married Maggie (?) from Sigai and moved to Saline Valley when the borax works opened, then to Furnace Creek, spending the summers at Wildrose Canyon. He had three daughters and two sons who died young and 6 daughters and one son who survived. When Joe died his younger brother married Maggie and they moved to Beatty. They had no more children.



Thus, at least 28 grandchildren were born to the seven children of Tule George's parents-in-law.

46. Mesquite Springs, Panuga (no meaning ?), at 1,730 feet. This village was only semipermanent. Cold Mountain Jack and Dock each had ranches here after the introduction of horticulture in early post-Caucasian times. These and other families, however, often visited it for ducks, seeds, grapes, and mesquite, and sometimes wintered here. Even Saline Valley people visited Mesquite Springs, though they seldom remained long. Its most frequent visitors appear to have been Cold Mountain Jack's large family which lived there about half the time.

Sand Springs, Yogomba (yogömi or yogombi, a flat+pa, water), in the northern end of the valley; no winter residents.

Salt Creek, Tugu'mü<sup>m1</sup> (tuguwü, sand+wutü, place), below sea level. The water was too saline to permit extended residence.

Various small springs on the eastern slope of the Grapevine Mountains served as temporary seed camps but seldom as winter residences.

*Subsistence activities.*—The subsistence area for these villages lay largely within the confines of the mountains enclosing Death Valley. Except for the short period of residence at the winter village, families moved independently. Thus, Dock, chief of the district and resident at Grapevine Canyon, traveled with his family without reference to the movements of Cold Mountain Jack of the same village. All the people assembled only for communal rabbit drives and fall festivals, under the leadership of Dock and Tule George's father.

Dock's family ordinarily wintered at Grapevine Canyon. In the spring, when food shortage brought hunger—BD remembered crying for food in the spring during his childhood—residents of Grapevine Canyon usually went to near Mexican Spring and Mud Spring on the western side of the Grapevine Mountains to spend about a month picking *Mentzelia* and *Oryzopsis* seeds. They then went to Surveyor's Well to pick mesquite which ripened in June or July and which was free to anyone. Or, in early spring, perhaps April, they went to Cottonwood Canyon in the Sigai district to gather chia, *Oryzopsis* seeds, *Lycium* berries, and pine sugar, wapihavi (wapi+havi, sugar). Sometimes they visited Mesquite Spring in the spring or fall to hunt ducks and to gather wild grapes and mesquite. After the white man came, Dock started a ranch there. At Grapevine Canyon they got grapes and various seeds.

In the fall, people from Grapevine Canyon, Surveyor's Well, and Mesquite Springs went into the Grapevine Mountains to gather pine nuts, Dock having announced when they were ripe. Families habitually gathered from the same tracts, but did not actually own them, for other persons were privileged to gather from them if they wished. Dock and his two wives carried as many nuts as they could down to Grapevine Canyon and stored the remainder in the mountains. This naturally limited the distance from the winter village that it was

feasible to go for pine nuts. But after Dock got horses, pine-nut gathering was greatly facilitated.

Cold Mountain Jack's family, meanwhile, wintered at Grapevine Canyon, Mesquite Springs, or Mahunu, and foraged for food either with Dock's family or alone, as they pleased.

No wild seeds were planted or irrigated in northern Death Valley, but horticulture was introduced in early post-Caucasian times. The plants and pattern of cultivation seems to have been borrowed almost completely from neighboring Southern Paiute. Few Death Valley people had farms. When BD was a small boy, perhaps in 1870, his father, uncle, and grandfather owned about 50 acres in Grapevine Canyon which, apparently, they subdivided, each cultivating his portion. Cold Mountain Jack also had a "ranch" about a mile below the village and one other family had a plot.

Before shovels were introduced, plain digging sticks were used for planting. Each species or variety was planted in a separate row. Work, including irrigation, was performed by both sexes. Because of the short winters, crops were planted in February and harvested in July.

Plots were family owned. This conformed to the principle of use ownership and conflicted with no native patterns. Inheritance was a simple matter. Plants, even those ready for harvest, were usually destroyed at the owner's death, as among Ash Meadows Southern Paiute, and the field lay fallow for a year or two, when any relative resumed cultivation.

Cultivation had not acquired an important place in native economy, though it was becoming important by 1890 (Nelson, 1891; Coville, 1892). Crops were usually consumed by the end of summer and helped little to relieve the want of food during the following winter. The increasing importance of the white man's economy, moreover, drew people into new activities and into regions outside their native districts. Thus, during the Rhyolite mining boom in 1906 they left their farms to haul wood for the mines. Some farming is still carried on, but odd jobs offered by the white man relegate it to a secondary place.

BD thought that soon after its introduction horticulture had spread also to Lida, Beatty, and Tupipah Springs east of Beatty.

So far as seed gathering was concerned, Death Valley people were split into families. That they habitually exploited approximately the same territory was a question of convenience, not of social or political coercion. And even seed gathering sometimes brought people from neighboring districts into the same area.

The annual rabbit drive, however, more or less consistently united all the inhabitants of the northern part of the valley under a single

chief and outsiders were recognized as mere visitors. The chief was Dock. Normal participants were residents of Grapevine Springs, Surveyor's Well, and Mesquite Springs. Beatty people often attended. In October, before pine-nut trips, all the families went to the vicinity of Mexican Spring at the lower end of Sarcobatus Flat. Dock addressed them each morning, announcing the location of the drive and of the feast at the end of the day. Only men took part in the hunt. The kill was divided equally among all participants, the flesh being roasted for the evening feast and the skins preserved for rabbit-skin blankets. Drives lasted about a month.

Large game was of secondary importance. Antelope occurred in small numbers in Sarcobatus Flat and perhaps at White Rock, but were never hunted communally and were rarely sought by individuals. There were virtually no deer nearer than Lida, an inconvenient distance away. Mountain sheep could be had on Tin Mountain, Dry Mountain near Sigai, and probably in the Grapevine Mountains. BD's father hunted little. Cold Mountain Jack hunted often, especially for mountain sheep.

Lesser game, especially rodents and chuckwallas, were of some importance. Birds were also taken when possible.

A little trade was carried on. This has been described on page 45.

*Festivals.*—The fall festival, held after the pine-nut trip, was combined with the annual mourning ceremony. When given at Surveyor's Well, families from Grapevine Canyon, Mesquite Spring, Sigai, and a few sometimes from Beatty, Panamint Valley, Darwin, and perhaps even Saline Valley, but not Ash Meadows, attended. In some years it was held at Sigai or in Saline Valley instead of Surveyor's Well, especially if pine nuts had been abundant in those regions. It may be that people in this wide area were able to for-gather only when horses, introduced after the white man arrived, facilitated transportation.

When held at Surveyor's Well, Dock was director. Panugatsugo (or Patuko) probably had this task before Dock. At Sigai and Saline Valley, Caesar and Tom Hunt were jointly directors.

The festivals started with the exhibition dance, mugwa nukana. At Surveyor's Well this was performed by Saline Valley men, and at Saline Valley by Surveyor's Well men. The dancers were paid in goods and shell money by the host village. This dance was followed by burning goods for the year's dead, then by the circle dance.

*Sweat house.*—The large community sweat house was not used. Instead, the sweat house was small, conical, with a center pole, earth-covered, and not more than 10 feet in diameter. Anyone desiring to do so built his own. BD's father, who greatly enjoyed sweat baths, had built one in Grapevine Canyon, one in the Grapevine

Mountains, one at Surveyor's Well, one at Furnace Creek, and one at Navadu. Anyone was privileged to use these, but they did not serve as club house and dormitory, and therefore had no connection with group unity. BD knew of no sweat house having been built at Sigai.

*Warfare.*—Warfare was unimportant. BD recalled but one episode. Sigai women picking sunflower seeds in upper Panamint Valley saw strangers. The next morning Sigai men pursued them into a dry cave and killed them. The identity of the invaders and the final disposal of them was unknown.

*Marriage.*—Marriage with any relatives was forbidden and it is probable, though not certain, that marriage with a pseudo cross-cousin, i. e., mother's brother or father's sister's stepdaughter, as practiced among Shoshoni of northern Nevada, was prohibited. Though kinship terms were not collected from Death Valley, Shoshoneans on all sides of them used the same system as that given for Little Lake, which has no features indicating either pseudo cross-cousin marriage or polyandry.

Choice of mates was not delimited by locality as such, but the inhabitants of these small villages and even the entire valleys were naturally much interrelated. Of 15 marriages recorded, 8 were with persons outside the valley, 5 within the valley but exogamous by village, 2 endogamous by village.

In arranging a marriage a man or his parents asked the girl's parents for the match, then paid them perhaps \$20. They gave seeds and other presents in return.

Marriage was supposed to be matrilocal for about a year, then independent. Of the eight cases of valley exogamy, two were matrilocal, three patrilocal, in three the couple moved to a new locality. The last, especially, were determined largely by factors introduced by the white man, the couple seeking work at a ranch or mine. Of the five cases of valley endogamy and village exogamy, one was patrilocal, two matrilocal, one in a new locality, one uncertain.

The levirate and sororate were both stressed, the census showing two cases of the former. Polygyny, especially sororal polygyny, was practiced, two cases being revealed in the census. Cold Mountain Jack's second wife, a sister of the first, was given him because of his outstanding ability as a hunter. There is one case of the marriage of a brother and sister to a sister and brother.

**CENTRAL AND SOUTHERN DEATH VALLEY.**—No detailed information is available for the central and southern parts of Death Valley. Furnace Creek (village 47 in fig. 7) was apparently the point of contact and intermixture of three linguistic groups: Shoshoni from the north, Southern Paiute who were also mixed with Shoshoni at Ash Mea-



dows 25 miles to the east, and Kawaiisü (also called Mugunüwü and Panümünt) who occupied the southern portions of Death Valley and Panamint Valley. JH, from Saline Valley, called Death Valley people Tsagwadüka (chuckwalla eaters), the only instance of naming by foods eaten recorded south of Benton, California.

There seems to have been a small winter village at the several springs at Furnace Creek, Tümbica (tumbi, rock), which is at about sea level. TSt remembered an old man, Pa: sanats (bat), whom he thought was chief, his two or three daughters, and several men. These people spoke Shoshoni, Southern Paiute, and Kawaiisü. BD, however, knew of no residents until the borax works were founded by the white man, when Bill Bullen and his son and five daughters moved there from Sigai. Subsequently, Furnace Creek has been headquarters for Shoshoni from a considerable distance. They live in a colony adjoining the modern winter resort, but move to Beatty, Saline Valley, and elsewhere during the summer.

The native subsistence area for the Furnace Creek people was predominantly in the Panamint Mountains, a few miles across the valley to their southwest. The Black and Funeral Ranges to the east were almost totally devoid of foods. The main summer camps were at Wildrose Spring, Blackwater Spring called Bast: (GG), and a spring near the head of Death Valley Canyon called Ko' (Kawaiisü for tobacco). Considerable mesquite, however, grows at Furnace Creek.

South of Furnace Creek the Death Valley population was predominantly Kawaiisü. Kelly (1934, p. 555) describes the boundary of the Las Vegas "band" of Southern Paiute as passing between the "Funeral mountains and Black range, thence south along the western slope of the latter, bringing the Vegas people to the very borders of Death Valley. More than likely Black range was held jointly by the Death Valley Panamint [Kawaiisü] and the Las Vegas; at best it was useful only as a source of mountain sheep and certain edible seeds." It is impossible to trace a boundary with any precision in an area like this. Ash Meadows was a mixture of Southern Paiute and Shoshoni, while southern Death Valley undoubtedly had an appreciable Shoshoni and Southern Paiute element in its population. Moreover, Ash Meadows and Pahrump Valley inhabitants went primarily for foods to the vicinity of Mount Shader and the Spring Mountains to their east and southeast rather than cross 20 miles of waterless, infertile desert to the barren Black Range, which has few peaks which rise even to 5,000 feet elevation in the Artemisia zone. Death Valley people sought foods in the Panamint Range. Thus a considerable territory between Ash Meadows and Death Valley was unoccupied and very little utilized.

TSt remembered three families which lived some 15 miles south of Furnace Creek. They probably spent some time during winter

in the vicinity of the Borax Works and Bennetts Well, which are about 250 feet below sea level, though there is some question as to the adequacy of water here in native times. Their main headquarters were Hungry Bill's ranch (village 48 in fig. 7), at 5,000 feet, well up in the Panamint Mountains east of Sentinel Peak. This was called Pūaituḡani (pūai, mouse+tuḡani, cave). Foods were procured in the Panamint Range.

There were 17 persons: Panamint Tom, the "chief," his wife, 2 sons and 4 daughters; Tom's brother, Hungry John, his wife, 2 sons and 2 daughters; Tom's sister, her husband, and son, Nūaidu (windy). They spoke both Shoshoni and Kawaiisū.

Some Shoshoni place names in this vicinity:

Hanaupah Canyon, Wici (from wicivi, milkweed). Panamint Range, Kaigota (J. H), Kaiguta (GH).

Telescope Peak, Siūmbutsi or Mu:gu (pointed).

Spring at head of Wildrose Canyon, Wabūts<sup>1</sup>; sometimes a summer camp for seed gathering.

#### BEATTY AND BELTED MOUNTAINS

Shoshoni occupied southern Nevada from the Amagrosa Desert eastward to the Pintwater Range and possibly beyond, including Desert Valley. Southern Paiute dwelt to the east, though it is probable that the population along the area of tribal contact was a mixture of Paiute and Shoshoni, like that at Ash Meadows.

This region is even less fertile than the Death Valley region, for the valleys are low, extremely large, hot, and generally arid. Few of the low mountain ranges penetrate even the pinyon zone. The great Amagrosa Desert, lying east of Death Valley, is some 40 miles long, 12 and more miles wide, only 2,500 to 3,000 feet above sea level, and almost devoid of water and edible plants. Valleys and flats to the north become gradually higher and hence somewhat more favorable to subsistence: Sarcobatus Flat, 4,000 feet; Pahute Mesa, 5,500 to 6,000; Gold Flat, 5,000; Kawich Valley, 5,500; Cactus Flat, 5,500. But the mountain ranges were too low to contribute streams to these valleys and, indeed, had few springs. The highest points of the Yucca and Bullfrog Ranges and of Bare Mountain near Beatty barely surpass 6,000 feet. The Shoshone, Cactus, and Timber Mountains reach only 7,500 feet, Pahute Mesa 7,000 feet, and the Belted Range 8,500 feet.

Some detailed information is available concerning two population centers, the vicinity of Beatty and the Belted Range, where, because there was an unusual number of springs, winter villages were clustered. Each of these centers is, in a sense, a district, for the residents naturally found it most convenient to associate with their nearest neighbors. But the two were somewhat interlinked through considerable intermarriage and some cooperation. But Beatty also asso-