

V. FISH REMAINS FROM THEA HEYE CAVE, NV-Wa-385

WASHOE COUNTY, NEVADA

W.I. Follett *

The fish remains described in this report were recovered from Thea Heye Cave, Washoe County, Nevada, during 1927 by M.R. Harrington, of the Museum of the American Indian, Heye Foundation, New York City.

The site

Thea Heye Cave, NV-Wa-385 (shown as Wa385 in the records of the Nevada State Museum), is a short distance eastward from the mouth of the Truckee River at the south end of Pyramid Lake. (The cave is 3.4 miles northward, by Nevada State Highway 34, from the town of Nixon.) It is on the westward slope of a steep ridge descending southwestwardly from the summit (elevation 4571 feet) of Marble Bluff (Map 1; Russell 1885: Pl. IX, Marble Buttes). The cave is located in the northwest quarter of Section 15, Township 23 north, Range 23 east of the Mount Diablo meridian, at latitude 39° 52' N, longitude 119° 24' W; its elevation is approximately 4200 feet.

This may have been one of the "several caves in the rock where there were baskets and seeds" observed by Frémont (1845: 218) as he journeyed from the vicinity of the pyramid to the mouth of the Truckee River and the nearby Indian village that later became the Piute Indian Agency (Map 2) and still later, the town of Nixon (Carlson 1974: 178). This appears to be one of the two caves mentioned by the Museum of the American Indian, Heye Foundation (1928: 136): "Through the generosity of Mrs. Thea Heye an expedition to two recently discovered caves near Pyramid Lake, Nevada, under charge of Mr. M.R. Harrington, has been made possible. Preliminary surveys show the caves to have been undisturbed and to be potentially richer in archeological material than the Lovelock cave, near the same site, which was partly excavated by the Museum a few years ago. It is expected that the exploration will require at least three months."

A cave about midway between the mouth of the Truckee River and the north shore of Pyramid Lake was inadvertently labeled Thea Heye Cave, Wa-63, by Bennyhoff and Heizer (1958: 73-76, Map 1). According to Donald R. Tuohy (personal communications March 29 and April 26, 1976), however, that is not the cave that was named Thea Heye Cave by M.R. Harrington: "Mr. Harrington...worked in Marble Bluff. He actually blasted away heavy tufa encrustations (dendritic tufa) which had shrouded the entrance to the cave, and he also spoke of the peculiar petroglyphs (both pecked and painted) located at the entrance. The only large cave that I know of where the tufa has been blasted away and where there are pictographs and petroglyphs is our site number 26Wa385... [Pictographs

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and petroglyphs at Thea Heye Cave are shown in Pls. 4-6.]...I have Mr. S.M. Wheeler's notes, and his description of Thea Heye Cave fits our site Wa385 with exactness.

"To recapitulate, it now appears that Wa-63 and Wa385 are both numbers that were assigned to Thea Heye Cave [on Marble Bluff], and the only error was made by Bennyhoff and Heizer (1958) when they showed a map with a site located about 1/2 way up the east side of Pyramid Lake. They labeled that location with the Wa-63 designator, but clearly, that site is our Mixon Cave, or 26Wa314 [it was named for Donald Mixon, a crew member who was killed in an accident]."

A comparison of a photograph of Thea Heye Cave taken by M.R. Harrington in 1927 (Plate 4) with a photograph of cave NV-Wa-385 that I took on July 31, 1976 (Plate 5) demonstrates that both photographs represent the same cave.

Mr. Harrington's materials should be referable to the Late Lovelock and Northern Paiute horizons. The Late Lovelock Horizon has been estimated to cover the time span A.D. 750-1400 in the lower Truckee Basin (Donald R. Tuohy, personal communications, August 24 and September 24, 1976). (There is a difference of opinion as to whether the Late Lovelock culture is referable to the ethnographic Northern Paiute).

At the type site (Lovelock Cave) the oldest cultural materials dated have a C14 age of 4690 ± 110 years B.P. (2740 B.C.), sample I-3962. Thus far, this is the earliest date for the Early Lovelock culture at Lovelock Cave. Radiocarbon dates for Lovelock Cave are listed in Heizer and Napton (1970: Table 4).

Fishes represented

The collection consists of 19 desiccated remains representing nine or more kuyui (Chasmistes cujus Cope) and one desiccated Tahoe sucker (Catostomus tahoensis Gill and Jordan). The material is deposited at the Museum of the American Indian, Heye Foundation, New York City; catalog numbers are those of that museum.

Counts of vertebrae and fin-rays were determined from radiographs; they are expressed as by Hubbs and Lagler (1958).

Kuyui, Chasmistes cujus

This large sucker, well figured by Snyder (1917: Fig. 2) and discussed in detail by La Rivers (1962: 363-372), constituted the principal food supply of the Northern Paiute band known as the Kuyui-dika (Kroeber 1925: 584) or Kuyuidókadó (Stewart 1939: 138-139, 147), the kuyui eaters, who inhabited the region of Pyramid and Winnemucca lakes (Powers 1877: 449).

The kuyui remains comprise nine headless skinned bodies, six skins (headless

but with some or all of the fins attached), two heads, and two gas bladders ("swim bladders").

Lengths of the kuyui represented by the skinned bodies and the skins were determined by the proportional method, based on the length of a corresponding vertebra in a dried skeleton of a kuyui 583 mm. (23 in.) in total length and 1.53 kg. (3 lb. 6 oz.) in weight (Calif. Acad. Sci. 1965-V: 27).

Skinned bodies (No. 15-8782) -- These specimens (one shown in Pl. 1, a, b) represent kuyui from about 50 cm. (19 3/4 in.) to 63 cm. (24 3/4 in.) in total length and perhaps 1.36 kg. (3 lb.) to 2.72 kg. (6 lb.) in weight. (Some indication of the weight of the fish represented by these skinned bodies may be derived from data recorded by Snyder (1917: 52): A male kuyui 50 cm. (19 3/4 in.) long weighed 1.36 kg. (3 lb.); a female 63 cm. (24 3/4 in.) long weighed 2.72 kg. (6 lb.); two adult females 52 and 54 cm. (20 1/2 and 21 1/4 in.) long each weighed 0.23 kg. (1/2 lb.) more than an adult male of the same length.)

Kuyui Skinned Bodies, No. 15/8782

Length (mm.)	Vertebrae	
	Precaudal	Caudal
243	1-27	1-13
236	2-27	1-9
232	1-27	1-8
226	2-27	1-7
213	1-27	1-4
178	1-26	
175	1-27	
159	2-24	
155	1-25	

Skins (No. 15/8781) -- The two skins (one shown in Pl 2, a) retaining all the fins and some of the posteroterminal vertebrae each represent a kuyui about 58 cm. (23 in.) in total length. The following counts were obtained from the skin measuring 364 X 204 mm. Fin-rays: anal 7, caudal (principal) 9+9, dorsal 11, pectoral 17/18, pelvic 10/10. Scales: 12-65-8/ 12-67-8. Posteroterminal vertebrae: 6. The following counts were obtained from the skin measuring 417 X 234 mm. Fin-rays: anal 7, caudal (principal) 9+9, dorsal 10, pectoral 17/17, pelvic 10/10. Scales: 12-61-9/12-62-9. Posteroterminal vertebrae: 16.

The lateral-line scale counts of 65/67 and 61/62 differentiate these specimens

from the Tahoe sucker, which yielded lateral-line counts of 90/88 (see Tahoe sucker, below).

Kuyui Skins, No. 15/8781

Size (mm.)	Fins					Pectoral girdle
	Anal	Caudal	Dorsal	Pectoral	Pelvic	
364 X 204	+	+	+	+	+	+
417 X 234	+	+	+	+	+	+
274 X 179	+			+	+	+
247 X 217			+	left	+	left
219 X 207			+	+	+	+
206 X 171	+		+		+	

Heads (No. 15/8783) -- The two heads (one shown in Pl. 2, b) are 111 and 117 mm. in length.

Gas bladders (No. 15/8784) -- The two gas bladders are 62 and 68 mm. in length.

Tahoe sucker, *Catostomus tahoensis* (No. 15/8780)

The Tahoe sucker (Snyder 1917: Fig. 1, as *Catostomus arenarius*), discussed in detail by La Rivers (1962: 352-357), was one of the abundant fishes of Pyramid and Winnemucca lakes.

This species is represented by a desiccated specimen (Pl. 3, a, b) 228 mm. in total length, with the following counts. Fin-rays: anal 7, caudal (principal) 9+9, dorsal 10, pectoral (incomplete) 10/11, pelvic 11/11. Scales: 17-90-12/17-88-12. Vertebrae: 28 precaudal + 17 caudal = 45 total. This specimen represents a small adult fish weighing about 232 g. (8.2 oz.), estimated mean value, as computed from the diameter of a caudal vertebra (Casteel 1972: 561).

Utilization of kuyui

This collection reveals an aboriginal practice of decapitating and skinning kuyui, thereby removing the fins and all bones except the vertebrae, ribs, and a few associated elements, but leaving most of the flesh intact. Removal of the head and skin would have appreciably reduced the weight of the carrier's burden if the fish were to be transported to some site remote from the lower Truckee River, where presumably they had been captured.

No other material that I have examined has demonstrated such a practice, although remains from three other archaeological sites contain kuyui material that could have been derived solely from decapitated, skinned bodies. A small piece of skin was the only kuyui material recovered from site NV-Wa-197, near the south end of Winnemucca Lake (Follett 1974: 39, 41, Pl. 2, b) and a few miles distant from Thea Heye Cave. The kuyui remains (which I have examined) from the Karlo site (CA-Las-7), Lassen County, California, more than 60 miles from the lower Truckee River, consist solely of vertebrae. The absence of any other element of the skeleton suggests the utilization of decapitated, skinned bodies at Karlo. The kuyui material from Lovelock Cave (NV-Ch-18), Churchill County, Nevada, some 50 miles from the lower Truckee River, consists principally of vertebrae (Follett 1967: 98; 1970: 168). The absence of most other skeletal elements is consistent with the transport of decapitated, skinned bodies to that site.

The practice of decapitating and skinning the kuyui was apparently at variance with that of the historic Northern Paiute. According to Harry Winnemucca (personal communication 1968), his people split and dried the kuyui.

Although the utilization of kuyui has been discussed by a number of authors (Powers 1877: 450; Snyder 1917: 53; Loud and Harrington 1929: 36, 157; Kelly 1932: 97; Stewart 1941: 370, 425; Hubbs and Miller 1948: 41; Rostlund 1952: 197, 207; Heizer and Krieger 1956: 32; Orr 1956: 6; La Rivers 1962: 371), I have found none who mentioned the decapitating and skinning of this aboriginally important fish.

Kuyui fishing areas

The inhabitants of Thea Heye Cave were favorably situated to intercept the annual kuyui migrations from Pyramid Lake up the lower Truckee River and also those from Winnemucca Lake up Winnemucca Slough (also called Mud Slough and Mud Lake Slough), an intermittent distributary of the Truckee River. The kuyui fishery was confined to those two streams. Both the river and the slough passed within a mile of the cave, although the course and length of each fluctuated with occasional changes in the topography.

The extent of such changes is suggested by several reports: Dead trees standing in Pyramid Lake, some distance from shore, indicated a rise of that lake previous to 1862 (Russell 1885: 64-65). The level of Pyramid Lake in 1867 was 3890 feet above the sea (King 1878: 505). In 1882, the level of Pyramid Lake was 3783 feet, and its greatest depth was 361 feet (Russell 1885: 101, Pl. IX).

Largely because Frémont (1845) did not mention a lake within the basin of Winnemucca Lake, Harding (1965: 103) concluded that Winnemucca Lake was dry in 1844 and remained dry until about 1858. Winnemucca Slough, in 1862, was so low that a person could cross it by stepping from stone to stone, at a point where in 1882 it was not less than 25 feet deep; in 1862, Winnemucca Lake was confined to the northern

extremity of its basin, and the stream reached it after meandering through meadow lands that in 1882 were 15 or 20 feet under water; in 1862, the channel of the stream could be traced along the bottom of the lake for some distance, and dead cottonwood trees were standing in the water, showing that Winnemucca Lake had previously been much lower (Russell 1885: 64). The level of Winnemucca Lake in 1867 was about 3810 feet; by 1871, the area of Winnemucca Lake had nearly doubled and its level had risen to about 3832 feet (King 1878: 505-506). In the summer of 1876 all the water of the Truckee River emptied into Winnemucca Lake since the outlet into Pyramid Lake had become closed by a gravel bar; but the following spring the annual rise of the river removed that obstruction (Russell 1885: 65). The greatest depth of Winnemucca Lake in 1882 was 87 feet (Russell 1885: Pl. IX).

The most favorable fishing areas, those relatively quiet waters where schools of migrating kuyui paused to rest, presumably varied with such topographical changes, including the variations in the level of each of the lakes -- which lengthened or shortened the lower courses of the river and the slough.

Historic kuyui fishery

Snyder (1917: 50-53) wrote of the kuyui (generally spelled cui-ui by ichthyologists): "Its distribution is restricted to Pyramid and Winnemucca Lakes, where it lives in deep water beyond the reach of ocular observation, except during the brief spawning period, when a migration is made for a short distance up the Truckee River.

"The annual run begins about April 15, varying somewhat of late years with the condition of the river. The season of 1913 afforded an unusually good opportunity for observation, as the water was comparatively low and clear, while during the entire spring a reasonably steady flow into both Pyramid and Winnemucca Lakes was maintained.

"The first 'cui-ui' appeared in the river April 13, when several schools passed up rather hastily and lodged in pools below an impassable irrigation dam. This preliminary wave having passed, none was seen again until on the morning of April 22, when schools of 20, 30, or even 50 or more individuals were observed moving slowly and steadily upstream. It was customary for them to congregate and lie for a while below a rapid place, then suddenly and speedily shoot up, singly or in pairs or in small straggling schools, their brilliant red and brassy sides flashing in the bright sunshine. None of these stopped to spawn. Some which were dissected did not appear to be ripe. They were very shy and fled at once on the approach of a shadow, the jar of crunching gravel, or a heavy footfall; but the observer could come close if the move was steadily made. The passage of large numbers continued intermittently, until about May 16, when it became evident that the migration was waning rapidly. After May 11 none was seen moving upstream.

"In the meantime spawning had begun and was progressing with great activity. On April 24 the first females were seen depositing eggs. However, several ripe males

and females were secured a little earlier. By May 5 every suitable bar or gravel bed was occupied by spawning fishes, whose activities entirely ceased before the 16th.

"The spawning is entirely suckerlike; it occurs in relatively shallow water where the flow is rapid, often at the head of a bar which turns or parts the current. At times the dorsal fins project above the surface, and in very shallow places where there is much crowding the whole back is exposed. Two, three, or even five or more males attend a single female during the spawning act. They wriggle over, alongside of, and around her, thrashing the water with such violence that close observation is impossible. Spawning fishes are easily alarmed, but if the observer approaches in the water, he may occasionally get close enough to pick up specimens without difficulty. Eggs may be stripped and fertilized with ease.

"The ovaries are large, the eggs small and very abundant. No enemy appeared on the spawning beds, but the habit of depositing the eggs in shallow water often exacts an enormous toll from the young of the species, for a sudden fall in the volume of the river may leave many nests high and dry in a single day.

"No doubt the migration and spawning activities here described are fairly typical. Usually the water is so high, swift, and roily that very little of what is going on beneath its surface can be seen. Of late years irrigation projects and power plants have at times seriously interfered with the flow of the river and consequently disturbed the normal life of some of its native species. During the winter of 1911-12 the snow was very light in the mountains and there were no heavy rains. The dam at Tahoe was closed early, and a large amount of water was at the same time diverted from the channel of the Truckee above Derby. The lower part of the river then became so reduced that water began to flow back from Pyramid Lake (where it was higher than usual), up the river, down the slough, and into Winnemucca Lake, the surface of which is lower than that of Pyramid Lake. This flow continued until the water of the channel between the lakes was practically as brackish as that of the lakes themselves. No 'cui-ui' appeared in the river until a full month after the usual time, and then not until high water suddenly forced back the brackish flow and sent a fresh stream out into the lake. On the advent of this directing current the usual rush of 'cui-ui' from the lakes began; large schools passed up the river (May 17) and spawned at once. During the earlier back flow sufficient depth was maintained for the easy passage of the fish, but it seems probable that there being no inflow of fresh water the waiting migrants were unable to find the mouth of the river.

"The time of departure of the fish from the river could not be determined because of high water, as no 'cui-ui' were seen at any time going down stream. A few individuals were seen in the river June 14, when the water suddenly cleared. On June 5, and for many days thereafter, large numbers of dying, dead, and decaying specimens were found at the mouth of Winnemucca Slough. This mortality among the 'cui-ui' is said to be a regular feature of the season at this place. If a similar death rate prevails in the lower Truckee, it was not evident at the time. However, the river was deep, the current strong, and the lake was stormy when the examination was made. A few dead individuals

are always found along the river after the breeding season. It is possible and quite probable that the death rate is high just after the breeding season, but there is nothing to indicate that all the fish die after spawning. The dead and dying examples bore no evident scars.

"Diligent inquiry brought forth no account of the species spawning in the lakes. No one was found who had even seen one there. Hours of observation from tufa domes failed to detect any among the myriads of fishes which could be easily identified. Yet on May 11, 1913, large numbers of 'cui-ui' were found depositing eggs along the shallows near some springs on the southwest shore. Both ripe males and females were examined. The Indians were after them almost immediately, and they declared that these were the first that they had seen in the lake. None was observed here May 16 or later. A few individuals were found spawning in Winnemucca Slough.

"Observers differ somewhat as to the most distant point reached by C. cujus during the nuptial migration. It appears in large numbers at the great bend of the Truckee, and it certainly ascends the river somewhat beyond the confines of the ancient Lake Lahontan. It never quite approaches the swift water above Reno. It would no doubt be a physical impossibility for the species to stem the turbulent water of the river canyon. The great blunt head and huge body, loaded down with eggs and fat, and the relatively small and weak caudal fin are not calculated to lend speed or endurance to a fish entering the current of a river for perhaps the first time. If Pyramid and Winnemucca Lakes contract and become too salty for fresh-water species, as may possibly transpire if much water is withdrawn from the Truckee River for irrigation purposes, this species no doubt will disappear.

"Spawning appears to be more active at night than in the daytime, and so, also, is migration. This became evident from direct observation and from the fact that early morning usually revealed greatly changed conditions in the river population.

"At times 'cui-ui' appeared in such large and densely packed schools that considerable numbers were crowded out of the water in shallow places, especially on the gently sloping river bars. Once several hundred were observed stranded near the mouth of the river. In some places they were jammed together in masses two or three deep. Some were crowded entirely out and dead, while others were in water a foot deep, yet pushing close to the main group in a perfectly demoralized condition. When one such conditionally free individual was carried some distance away and headed upstream, it passed on its way with great speed, but if removed a short distance only it returned to the mass like an iron to the magnet. It was impossible to separate any number and get them started away from the stranded school. Cormorants, gulls, and pelicans in great numbers were attacking them, and many of the still wriggling fishes had lost their eyes and strips of flesh had been torn from their sides.

"The stomachs of all specimens examined were devoid of food.

"The flesh of this species is highly prized by the Indians. In former times the coming of the 'cui-ui' was a great event, not only for the Pyramid Lake tribe but also for other Piutes from far to the south, who sometimes reached the fishing grounds in such a starved condition that many were unable to survive the first feast. At present numerous little camps may be seen along the river during the spawning period. The fishes are caught in large numbers and tons of them are dried for later use. They are taken most easily when the river is roily, the fishermen hooking them with an improvised gaff which is drawn quickly through the muddy water. Knowing the 'cui-ui' habit of resting in schools in quiet water, the Indian establishes his camp accordingly, and the willows, wire fence, or hastily constructed rack are soon covered with unsalted drying fish, which attract numbers of flies and send characteristic odors a long distance down the wind."

Utilization of Tahoe sucker

The Tahoe sucker represented in this collection may have been captured at the time of the kuyui migration. I have collected small adult Tahoe suckers (Calif. Acad. Sci. 26323) at the mouth of the Truckee River under circumstances suggesting that they were accompanying the spawning kuyui to feed on the kuyui eggs.

According to Harry Winnemucca (personal communication 1968), his people very seldom speared suckers (a-wá-go), but occasionally caught them with a baited hook. The suckers seldom ascended the Truckee River, but at times came close to the lake shore, where they could be heard splashing at night and could be seen by full moon, but they were wary and would flee when approached. Most of the suckers were smaller than the kuyui. Some of the older people -- a very few -- liked the suckers especially. They would gut the suckers and roast them, but did not bother to remove the scales.

Acknowledgments

I thank E. K. Burnett, Director of the Museum of the American Indian, Heye Foundation, for permission to study and report upon this collection of fish remains; Carmelo Guadagno, Staff Photographer of the Museum of the American Indian, for an enlargement of a photograph taken by M. R. Harrington and for permission to reproduce that photograph in this paper; Robert F. Heizer, of the University of California, Berkeley, for information and advice; Lewis K. Napton, of Stanislaus State College, for advice; Donald R. Tuohy, of the Nevada State Museum, for information regarding Thea Heye Cave; Stanley M. Barnes, hydraulic engineer of Corcoran, California, for advice; Richard W. Casteel, of Simon Fraser University, British Columbia, for the methodology used in computing the size of the Tahoe sucker; Lillian J. Dempster, of the California Academy of Sciences, for assistance with the manuscript; and Maurice C. Giles, of the California Academy of Sciences, for enlargements of the photographs and for prints of the radiographs. The late Harry Winnemucca, distinguished Northern Paiute elder, of Nixon, Nevada, graciously provided me with information regarding the fishing methods of his people and their preparation of fish for food.

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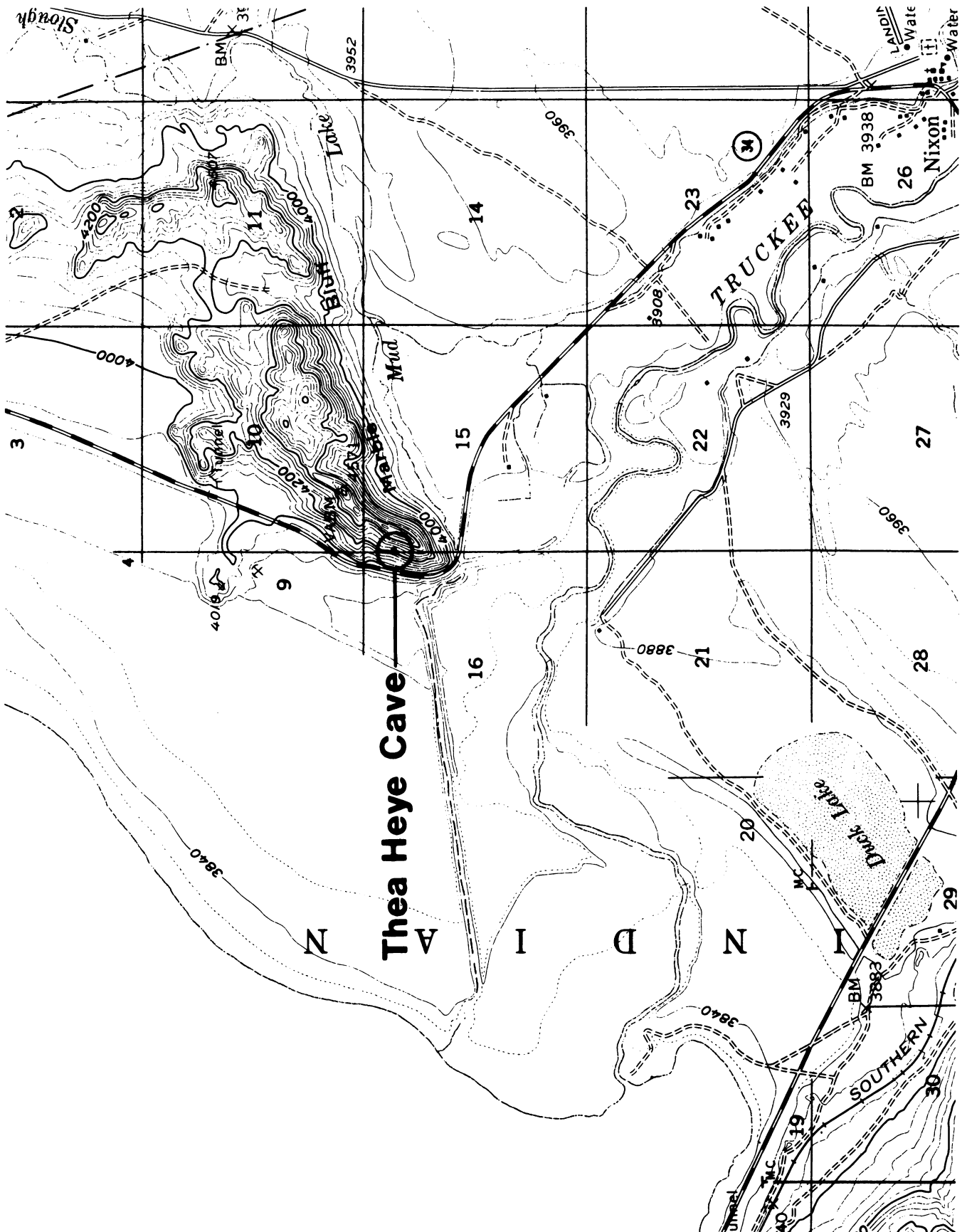
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Catalog numbers are those of the Museum of the American Indian, Heye Foundation, New York City.

Map 1 Part of Nixon, Nevada, Quadrangle (1957), U. S. Geological Survey, showing the location of Thea Heye Cave on Marble Bluff.

Map 1



Map 2

Map 2 Northwestern part of Wadsworth Sheet (1892), U. S. Geological Survey, showing the location of Marble Bluff with relation to Pyramid and Winnemucca lakes, Truckee River outlet, and Winnemucca Slough (Mud Lake Slough).

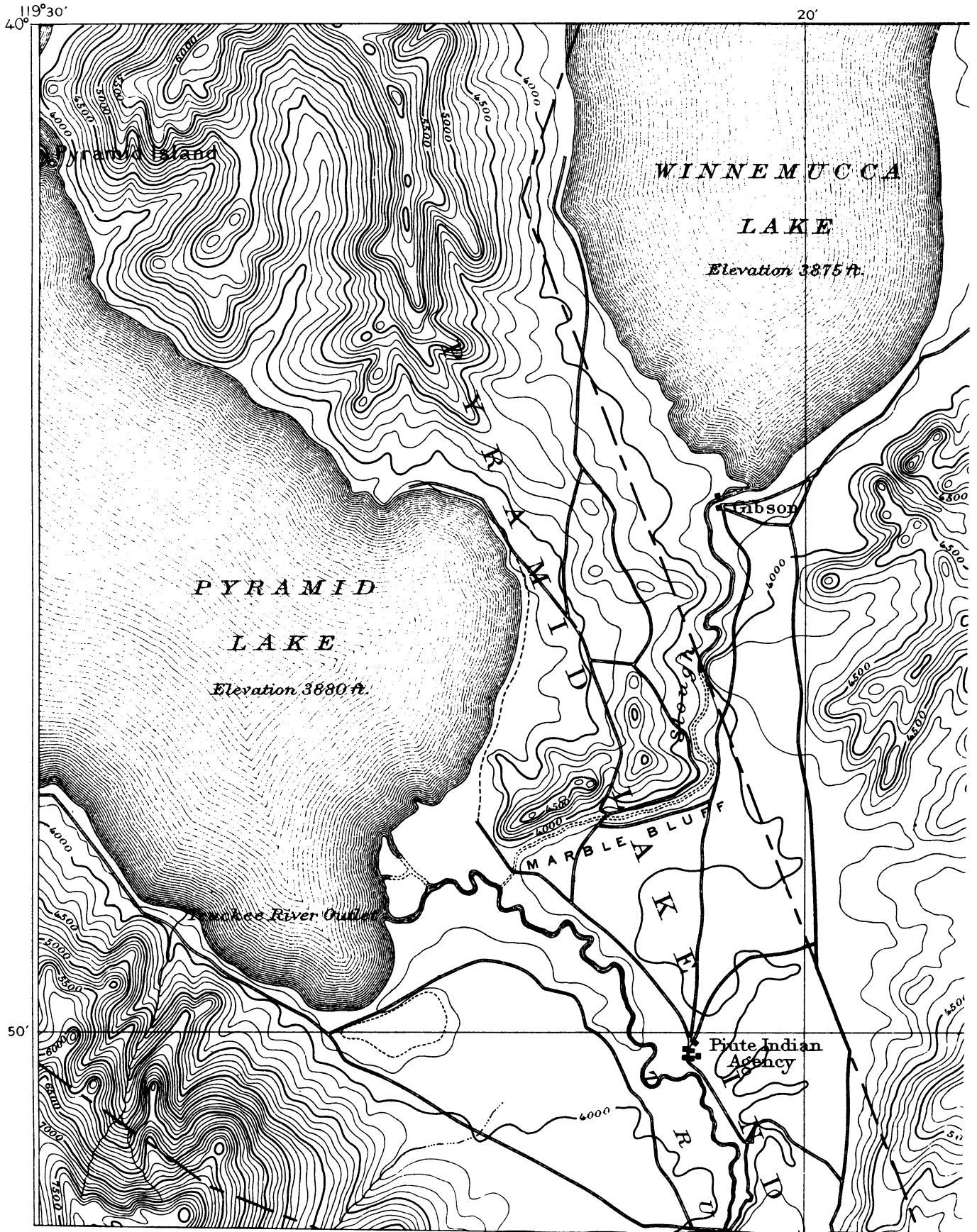


Plate 1a Skinned body, length 236 mm., of kuyui (Chasmistes cujus), from a fish about 53 cm. (21 in.) in total length; No. 15/8782.

Plate 1b Print from radiograph of skinned body shown in Plate 1a.

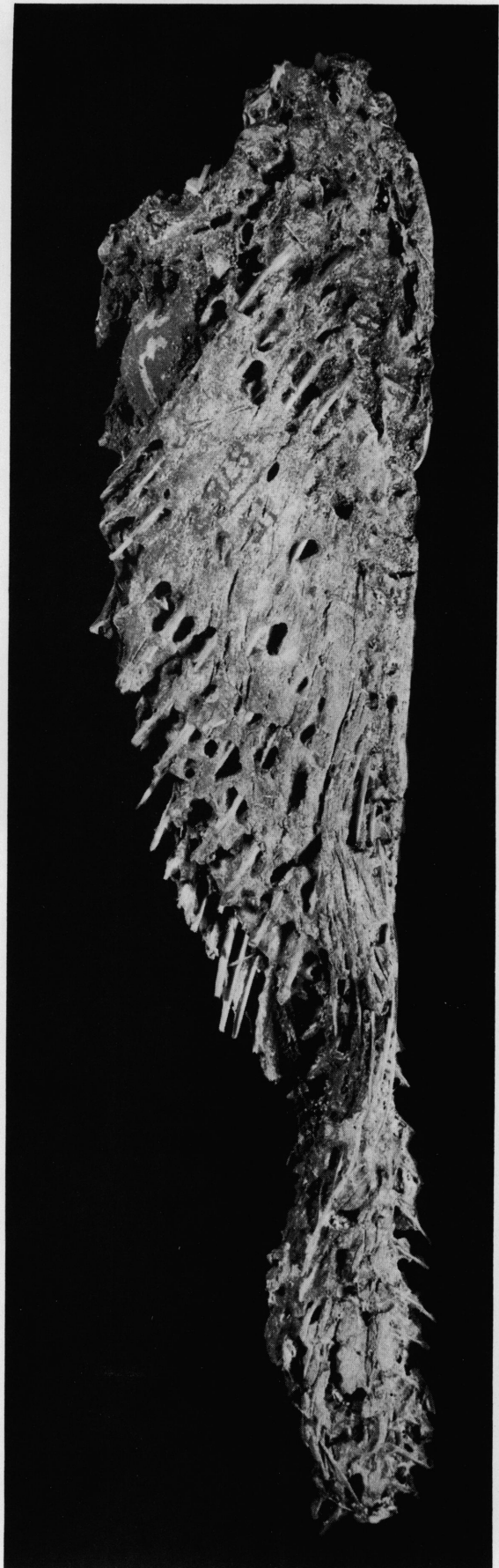


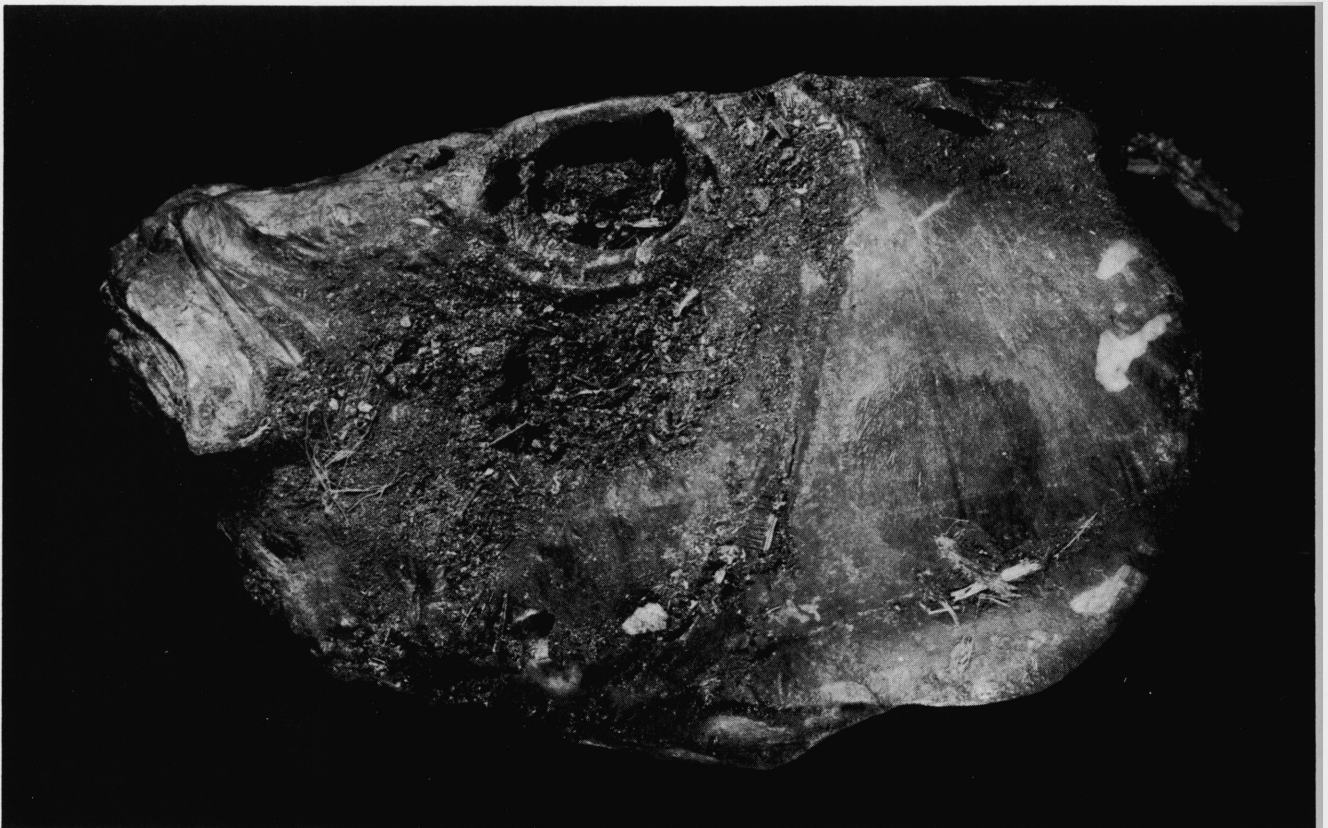
Plate 2

Plate 2a Skin, 364 X 204 mm., of kuyui (Chasmistes cujus), from a fish about 58 cm. (23 in.) in total length; No. 15/8781.

Plate 2b Head, length 117 mm., of kuyui (Chasmistes cujus); No. 15/8783.



a



b

Plate 3a Tahoe sucker (*Catostomus tahoensis*), total length 228 mm. (9 in.), live weight perhaps 232 g. (8.2 oz.); No. 15/8780.

Plate 3b Print from radiograph of Tahoe sucker shown in Plate 3a.

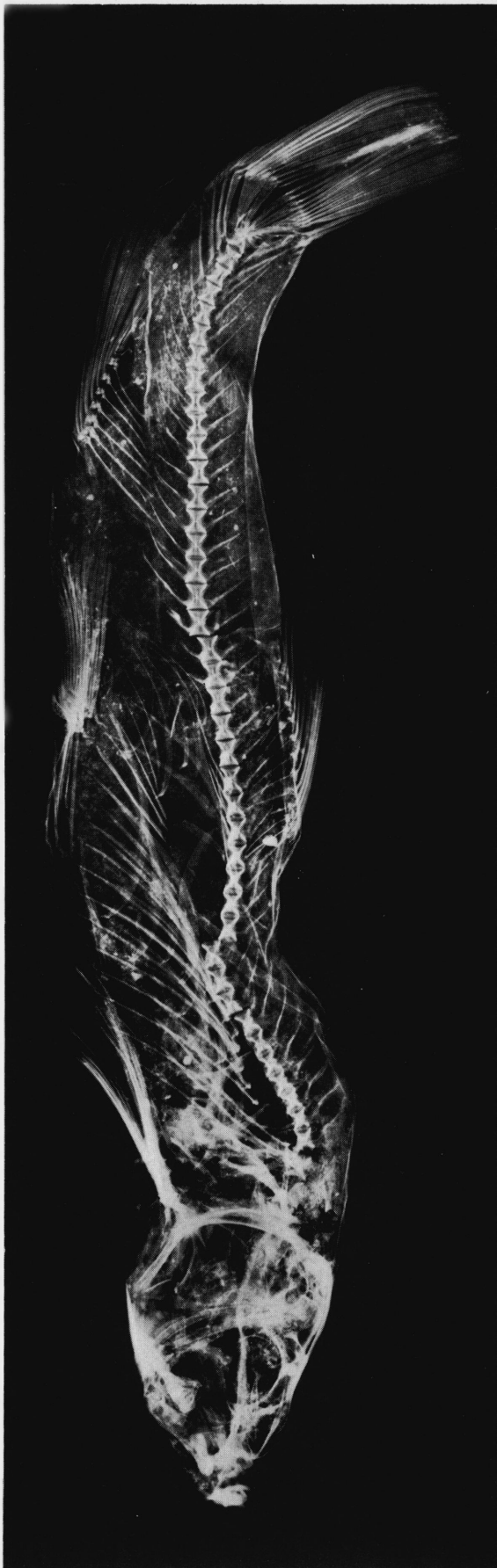


Plate 4 Thea Heye Cave, Marble Bluff, Washoe County, Nevada. Photograph by M.R. Harrington, 1927, courtesy of Museum of the American Indian, Heye Foundation.

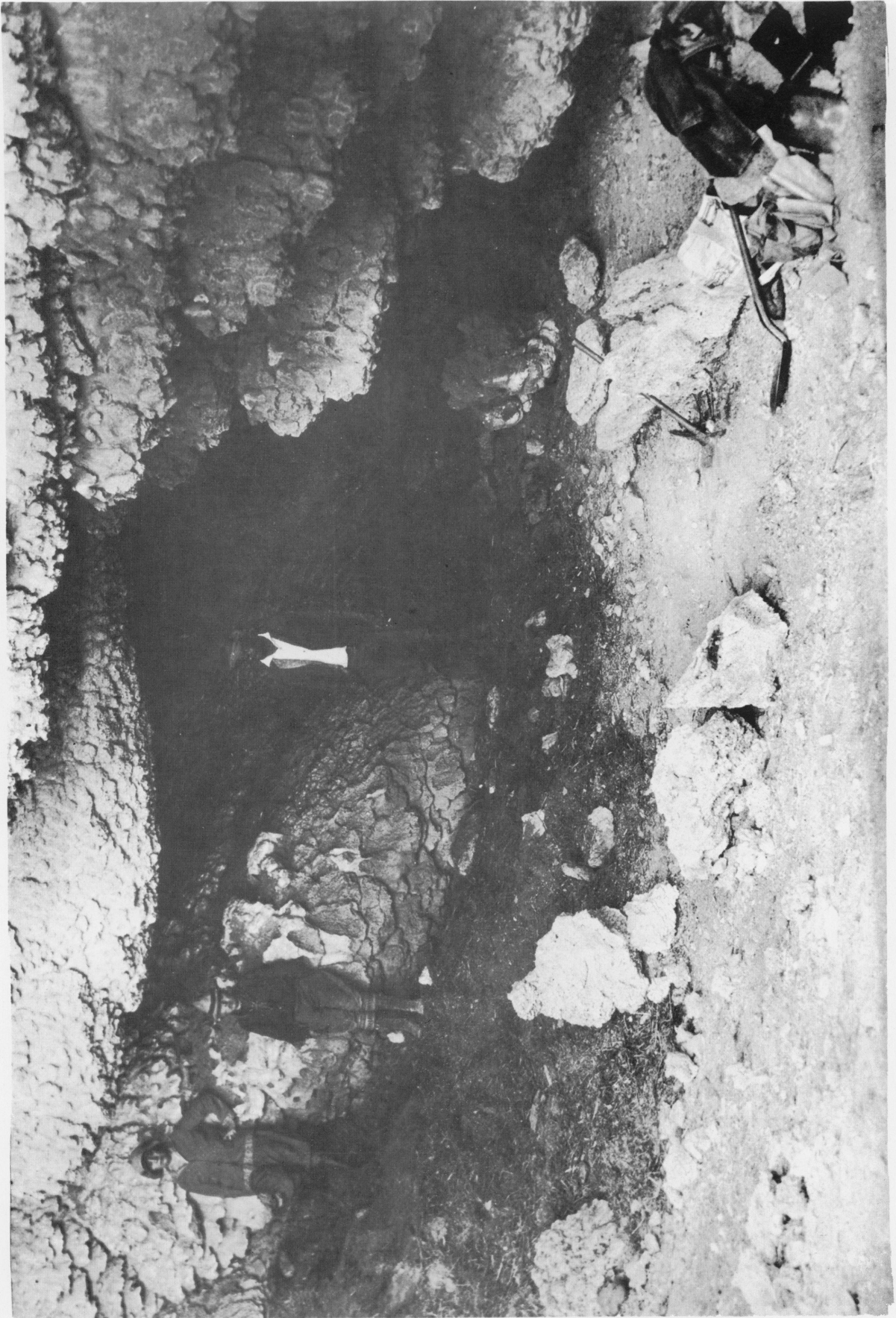


Plate 5 Thea Heye Cave (NV-Wa-385), Marble Bluff, Washoe County, Nevada, as photographed by W. I. Follett, July 31, 1976.

Plate 5



Plate 6 Pictographs and petroglyphs at Thea Heye Cave (NV-Wa-385), Marble Bluff, Washoe County, Nevada. Photograph by W. I. Follett, July 31, 1976.

