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historic structure report

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**EL MORRO**  
THE HISTORIC POOL



NATIONAL MONUMENT / NEW MEXICO

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HISTORIC STRUCTURE REPORT

THE HISTORIC POOL,

EL MORRO NATIONAL MONUMENT,

NEW MEXICO

by

Jerome A. Greene

DENVER SERVICE CENTER  
HISTORIC PRESERVATION DIVISION  
NATIONAL PARK SERVICE  
UNITED STATES DEPARTMENT OF THE INTERIOR  
DENVER, COLORADO

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Jerome A. Greene  
April 10, 1977

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## I. EL MORRO AND THE POOL

### A. Introduction

El Morro National Monument is located in west-central New Mexico, fifty-eight miles southeast of Gallup and forty-three miles west of Grants. The monument commemorates nearly three centuries of exploration and travel in the American Southwest. Soldiers of New Spain came to the huge sandstone cliff that juts skyward from the plain as early as 1583, and perhaps earlier. Later, El Morro witnessed the progression past its base of Mexican and American military columns and American emigrant parties. It provided a landmark, a guidepost for human travelers in different periods of time.

### B. The Water Below the Rock

Today the massive cliff is best known for the hundreds of inscriptions etched in its soft surface by the many folk who paused there over the last 300 years. Yet the area once harbored prehistoric Indian groups, ancestors of modern Pueblo and Zuni peoples, some of whose ruined stone architecture survives atop an adjoining mesa. Their pictographs and petroglyphs predate and complement the signatures of the more recent sojourners. For the Indians and their European successors, however, the principal attraction was not Inscription Rock itself but the dependable water supply its rocky base afforded weary and thirsty travelers. Even before the advent of white men in the country, El Morro was an important watering place and the only one of consequence lying between Indian communities to the east and west, a factor that accounts in large measure for its selection as a village site by indigenous groups.<sup>1</sup> The preeminence of El Morro as a watering spot for travelers in a semi-arid environment lasted until the late 1870s when emigrants began using a more feasible route located about 25 miles to the north. Thereafter El Morro was relegated from its position of prominence; the pool became a reliable water source for farmers and ranchers in its immediate vicinity.<sup>2</sup>

### C. National Monument

On December 8, 1906, El Morro became one of the first national monuments in the United States, by proclamation of President Theodore Roosevelt. The

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1. Charles F. Lummis, *Some Strange Corners of Our Country: The Wonderland of the Southwest* (New York: The Century Company, 1892), p. 162; Sam W. West, "Geology and Water Supply, El Morro National Monument, New Mexico." U.S. Geological Survey (unpublished manuscript dated May 1960, in the library of El Morro National Monument), p. 2.

2. John M. Slater, *El Morro, Inscription Rock, New Mexico* (Los Angeles: The Plantin Press, 1961), p. 47; Sam W. West and Helene L. Baldwin, *The Water Supply of El Morro National Monument* (Washington: U.S. Geological Survey, 1965), p. 8.

action was taken in an attempt to preserve the historically significant site against deterioration through vandalism and neglect. As early as 1892 Journalist Charles F. Lummis had advocated protection for the "Stone Autograph-Album," calling it "the most precious cliff, historically, possessed by any nation on earth, and, I am ashamed to say, the most utterly uncared-for."<sup>3</sup> Legislation creating the monument resulted from its active promotion by two interested government agencies. Late in 1899 the acting secretary of the Smithsonian Institution informed the commissioner of the General Land Office of the unique natural and historical attributes of Inscription Rock. After completing its own examination, the latter agency obtained withdrawal of the land from the public domain in 1901. Five years later El Morro National Monument became a reality.<sup>4</sup> From 1907 until creation of the National Park Service in 1916, El Morro was administered by the General Land Office. Direct supervision of the site was the responsibility of G.L.O. Chief of Special Agents F. C. Dezendorf, who was headquartered at Santa Fe and who exercised similar duties with regard to other national monuments in the Southwest.<sup>5</sup>

#### D. Importance of the Pool

Significantly, in its establishment as a national monument, El Morro was selected as much for the historic water pool at its base as for the carvings on its face:

On the south side of the rock, [reported the General Land Office in its evaluation] in the angle formed by the mesa and the projection of 'El Moro' [sic] there is a small spring under the overhanging brow of the cliff. This, doubtless, was the favorite camping ground of the ancient explorer and traveler passing thru this arid region. . . . The old, well worn road, now disused, passes around and under the very wall of El Moro, and this spring was the only one on this road within 30 or more miles in either direction.<sup>6</sup>

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3. Lummis, *Some Strange Corners of Our Country*, pp. 164, 166.

4. National Archives, Record Group 79. Cited in Albert Schroeder, Miscellaneous File Notes, in the library of the National Park Service, Western Archeological Center, Tucson, Arizona.

5. *Ibid.*

6. Synopsis of report to the Secretary of the Interior by Special Agent Holsinger of the General Land Office, March 7, 1901, quoted in "El Morro or Inscription Rock," clipping from an unidentified newspaper, circa 1901, in W. C. Barnes Scrapbook No. 2, Arizona Historical Society, Tucson.

The "spring" mentioned was actually the water pool, sheltered for centuries beneath the towering sandstone monolith on which the famous writings are inscribed.<sup>7</sup>

#### E. Present Appearance

Lying on the east side of the great rock at its juncture with the southward-extending mesa on which the Indian ruins are located, the pool has been formed by rainwater and the melt of accumulated snow cascading over the precipice immediately above and eroding a small basinlike cove at the foot of the rock. Sheltered for much of the day against direct sunlight by the adjacent sandstone heights, the water evaporates slowly, a factor that accounted for its reputed availability among emigrants.<sup>8</sup> Under the management of the National Park Service the pool at El Morro underwent many modifications that changed its appearance from that known in history. Most of the alterations have affected the size and shape of the basin and the surrounding terrain. Today the pool measures about fifty feet across, twelve feet deep, and has a concrete dam providing a capacity for about 200,000 gallons of water.<sup>9</sup>

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7. Technically, the sandstone is called Zuni Sandstone, belonging to the Jurassic age of 150-125 million years ago. The soft sandstone cliff of El Morro is capped with a harder variety that helps retard erosion. West, "Geology and Water Supply," p. 16; West and Baldwin, *Water Supply of El Morro*, p. 21.

8. West, "Geology and Water Supply," p. 16.

9. West and Baldwin, *Water Supply of El Morro*, p. 3.

## II. HISTORICAL REFERENCES TO THE WATER TANK

Historical mention of the water pool in the reports, journals, and diaries of the various European visitors to El Morro is sketchy at most. The pool and its refreshment constituted a routine matter that was largely taken for granted by those who rested there. More attractive, especially in later years, were the inscriptions that covered the base of El Morro, and the concentration of visitors on the etched phrases and signatures seemingly distracted what interest might otherwise have been shown in the pool.

### A. The Espejo and Oñate Visits

The first recorded reference to El Morro and, specifically, the water pool appeared in the journal of Diego Pérez de Luxán, a member of Antonio de Espejo's expedition into New Mexico in 1582-83. On March 11, 1583, after a day's march of "three leagues," Espejo's column camped "at a waterhole at the foot of a rock. This place we named El Estanque del Peñol [The Pool by the Great Rock]."<sup>10</sup> Following Espejo's visit there appears to be no further reference to the pool until late in the sixteenth century. On October 29, 1598, over fifteen years after Espejo, Don Juan de Oñate, the colonizer of New Mexico, camped at El Morro with his exploring party enroute to the Pacific Ocean. Oñate termed the place "El Agua de la Peña," ("The Water by the Rock").<sup>11</sup> A somewhat lengthier description of the pool during this period was offered by one of Oñate's soldiers, Gaspar Perez de Villagrá. Villagrá had been trying to overtake the Oñate party after chasing some deserters. In a series of mishaps he tumbled into a pit and lost his horse. After days of wandering he reached El Morro where he encountered "a quiet tank of cold water." Villagrá recounted his experience in his *Historia de la Nueva Mexico*, first published in 1610: "At last I arrived at a great cliff at whose foot flowed a crystalline [sic] stream. I threw myself into its water, blinded and burning with thirst, and drank long of its cool waters."<sup>12</sup> Fortunately

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10. George Peter Hammond and Agapito Rey (trans.), *Expedition into New Mexico Made by Antonio de Espejo, 1582-1583, as Revealed in the Journal of Diego Pérez de Luxán, a Member of the Party*. Quivira Society Publications, I. (Los Angeles: The Quivira Society, 1929), p. 88; Erik K. Reed, "Spanish Expeditions and El Morro Inscriptions" (unpublished manuscript dated 1951 in the library of El Morro National Monument), p. 6; Slater, *El Morro*, p. 4; Bertha S. Dodge, *The Story of Inscription Rock* (Canaan, New Hampshire: Phoenix Publishing, 1975), p. 4.

11. Herbert E. Bolton, *Spanish Exploration in the Southwest, 1542-1706* (New York: Charles Scribner's Sons, 1916), p. 235; Dodge, *Inscription Rock*, p. 4.

12. Gaspar Perez de Villagrá, *History of New Mexico*. Trans. by Gilberto Espinosa (orig. pub. Alcalá, 1610; translated edition, Los Angeles: The (continued)

for Villagrá, some of Oñate's soldiers happened by El Morro while looking for lost horses and rescued the hapless man from certain death.<sup>13</sup>

#### B. Vargas and El Morro

The Spanish term "El Morro" translates as "The Headland," or "The Bluff," and its designation as such in early documents dates from the visit there of Don Diego de Vargas on November 8, 1692. Vargas's expedition was sent into New Mexico several years after the Pueblo revolt of 1680, with the purpose to "conquer" the province for the "Holy Faith" and the "Royal Crown."<sup>14</sup> His chronicle describing the appearance of the water pool at El Morro is the most detailed to that time:

Today, . . . I . . . arrived with the said force at this water hole of El Morro, which is a very large and vast rock, at the foot of which there is a shallow pool in the shape of an orange, in which rain water is collected, and whether there is any certainty of finding it with water whether it rains or not, it was God's will that at the present time it was found in great abundance. And so the said force and the horses, mules, and cattle were well supplied, and sufficient remained for us, God willing, to supply ourselves upon our return.<sup>15</sup>

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12. (continued) Quivira Society, 1933), canto 19. This work was written in rhyme, and the reference to the "quiet tank" is in Slater's given translation:

By great effort I arrived  
At the foot of some lofty cliffs  
At which I sat down, and then saw that there was  
A quiet tank of cold water,  
Above whose crystalline [waters], almost blind,  
I was with difficulty conquering the great madness  
Of the insatiable thirst which overwhelmed me,  
When trembling, all exhausted,  
The wet liquor injected strength. . . .

*El Morro*, p. 6.

13. Slater, *El Morro*, p. 6. Oñate came to El Morro on several other occasions, and in 1605 he inscribed what has become the earliest remaining non-Indian inscription on the sandstone face of the bluff.

14. Dodge, *Inscription Rock*, p. 8.

15. J. Manuel Espinosa (trans.), "Vargas's Campaign Journal and Correspondence, October 16, 1692, to January 12, 1693," *First Expedition of Vargas* (continued)

From this description, it appears that the pool was close to full during Vargas's visit and that it was large and deep enough to provide ample water for the entire command of several hundred men and their animals.

During the years after the Vargas Expedition countless other Spanish and, later, Mexican groups passed by El Morro or stopped to rest, camp, and quench their thirst at the pool. Sadly, few individuals recorded their visitation in a manner other than a name etched into the sandstone. Moreover, where mention of the site does occur, the water pool is overshadowed by the famed inscriptions. If other Spanish journals describing the pool exist, they have yet to come to light. Yet one thing is clear regarding extant Spanish narrations with reference to the pool--they are in complete agreement in depicting the tank as a water pool. Later American visitors would inevitably--and wrongly--portray the spot as a spring, an error that became endlessly compounded with successive descriptions of El Morro.

### C. The First American Record

In 1848, over 150 years after Vargas came to the bluff, the province of New Mexico became part of the United States by virtue of conquest in the war with Mexico. The El Morro country soon became a popular route for emigrants going to California. In August 1849, a United States Army expedition headed from Santa Fe towards Navajo land. Accompanying the column was First Lieutenant James H. Simpson of the Corps of Topographical Engineers, under instructions to survey enroute as much as possible of the new American acquisition.<sup>16</sup> Simpson and one or two others visited El Morro on September 17, 1849. In his official report the lieutenant remarked on the "spring" he found there:

Canopied by some magnificent rocks, and shaded by a few pine trees, the whole forming an exquisite picture, . . . we found a cool and capacious spring--an accessory not more grateful to the lover of the beautiful than refreshing to the way-worn traveller.<sup>17</sup>

Simpson and his artist, Richard H. Kern, left their names emblazoned on El Morro before departing.

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15. (continued) *into New Mexico, 1692* (Albuquerque: University of New Mexico Press, 1940), p. 197. See also: Albert Leonard (trans.), *The Mercurio Volante of Don Carlos De Siguenza y Gongora: An Account of the First Expedition of Don Diego De Vargas into New Mexico in 1692* (Los Angeles: The Quivira Society, 1932), p. 78.

16. Slater, *El Morro*, p. 28.

17. U.S. Senate, "The Report of Lieut. J. H. Simpson of an Expedition into the Navajo Country," 31 Cong., 1 Sess., S. Ex. Doc. No. 64, p. 120.

#### D. Visits in the 1850s and 1860s

Two years later another, more intensive, survey of the New Mexico country was begun under Brevet Captain Lorenzo Sitgreaves who was directed to explore the Zuni River through to its confluence with the Colorado. With Sitgreaves's expedition was Dr. Samuel W. Woodhouse who served both as column physician and as naturalist. The command arrived at El Morro on August 29, 1851. Woodhouse noted inaccurately that the "spring" at its base comprised "the head of the Rio Zuni"; however, he also observed that around the pool "there is an abundance of grass, but few flowers."<sup>18</sup> Evidently the water pool at this time was ringed with a turf and sand bank and did not press directly against the rock wall as it does today. A member of the Sitgreaves column named S. Weaver was able to walk around the tank into the recess behind and carefully inscribe his name on the wall.<sup>19</sup> This appearance is verified by the description left by a French Abbé, Emmanuel Henri Dieudonné Domenech, who visited El Morro during the 1850s. Domenech characterized the water tank as "a spring of translucent water, which bubbles up . . . from amid a circular basin surrounded by verdure."<sup>20</sup>

There is evidence, too, that at approximately this time, or even before, a dam was erected at the tank, perhaps by Indians from Zuni or from one of the other pueblos to the east. During the 1920s when workers cleaned out the pool preparatory to building a dam there, they uncovered the remains of an earlier one built of cedar posts and rock. Moreover, this dam had been constructed a short distance above where the modern cement one was erected, suggesting that the pool, at least in the middle of the nineteenth century, was confined to a considerably smaller area than it has been recently.<sup>21</sup>

The abundance of water that had come to typify the pool at El Morro was lacking on November 18, 1853, when First Lieutenant Amiel Weeks Whipple brought his railroad exploration and survey column to the site. Reported Whipple:

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18. S. W. Woodhouse, "Report on the Natural History of the Country Passed Over by the Exploring Expedition under the Command of Brevet Captain L. Sitgreaves, U.S. Topographical Engineers, During the Year 1851," in U.S. Senate Report of an Expedition down the Zuni and Colorado Rivers, by Captain L. Sitgreaves, Corps Topographical Engineers, 32 Cong., 2 Sess., S. Ex. Doc. No. 59, p. 35.

19. Slater, *El Morro*, p. 35.

20. Abbé Em. Domenech, *Seven Years' Residence in the Great Deserts of North America*, 2 vols. (London: Longman, Green, Longman, and Roberts, 1860), 1:208.

21. "The [historical] dam was constructed of cedar posts and rock. The posts were in such state of preservation that I hardly think it was of prehistoric date. In fact I would say that it must have been made within the last 100 years by Indians. . . ." Former El Morro Custodian Evon Z. Vogt to Custodian George W. Baxter, October 11, 1942, in the library of El Morro National Monument.

At the re-entering angle [formed by the cliffs] there is a semi-cylindrical recess, slightly shelving, and as smooth as if a cascade had poured for ages over the top. Below is a spring or pool of water supplying the camp; but affording barely sufficient for the mules and cattle.<sup>22</sup>

Whipple noted that the pool contained a great quantity of sediment, which if removed "would afford sufficient water for the ordinary uses of the [aboriginal] inhabitants, but none for irrigation."<sup>23</sup> One member of Whipple's command was Baldwin Möllhausen, who served the expedition as artist and topographer. Möllhausen described the water tank in his diary, somewhat echoing Whipple's remarks:

The spring was at the south side [of El Morro], in a small ravine, at the place where the smooth rocky wall came to an end; but it had only a scanty supply; and the water, which formed a little pool, was hardly enough for our Expedition.<sup>24</sup>

Möllhausen mentioned that "a large pine stood alone in the dark corner by the water."<sup>25</sup> This tree is depicted in early drawings of the pool, notably one by the artist Richard H. Kern, who accompanied Lieutenant Simpson's party in 1849.<sup>26</sup>

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22. "Extracts from the [Preliminary] Report of Lieutenant A. W. Whipple, Corps of Topographical Engineers, upon the Route Near the Thirty-fifth Parallel," in U.S. Senate, *Reports of Explorations and Surveys, to Ascertain the Most Practicable and Economical Route for a Railroad from the Mississippi River to the Pacific Ocean*. 1853-4, 33 Cong., 2 Sess., S. Ex. Doc. No. 78, p. 63. Regretably, the "Report on the Geology of the Route" accompanying this account simply quotes Whipple's description. *Ibid.*, p. 39.

23. *Ibid.*, p. 64. This observation also applied to another pool located on the west side of El Morro.

24. Baldwin Möllhausen, *Diary of a Journey from the Mississippi to the Coasts of the Pacific with a United States Government Expedition*. Trans. by Mrs. Percy Sinnett, 2 vols. (London: Longman, Brown, Green, Longman, and Roberts, 1858), 2:69.

25. *Ibid.*

26. Kern's picture appears as Plate 62 in Simpson's Report, S. Ex. Doc. No. 64, 31 Cong., 1 Sess. See also the engraving following p. 306 in Samuel W. Cozzens, *The Marvellous Country; or, Three Years in Arizona and New Mexico, the Apaches' Home* (Boston: Shepard and Gill, 1873). A lone pine tree appears at the exact spot in a photo taken as recently as 1941. See Slater, *El Morro*, p. 78, which also shows the engraving from the Cozzens book.

Very little information about the water pool appears in the documents regarding Edward Fitzgerald Beale's camel caravan which stopped at Inscription Rock on August 23, 1857. Beal's report, in fact, includes no mention of the tank and instead concentrates on telling about the inscriptions and the prehistoric ruins there.<sup>27</sup> May Humphreys Stacey, one of Beale's group, simply commented: "We camped at a spring called El Moro [sic] situated at the base of Inscription Rock."<sup>28</sup> And in July 1858, a party of about 500 emigrants passed by El Morro via the route used by Beale. John Udell, who kept a diary, briefly noted the presence of water at the rock.<sup>29</sup>

By 1860 Inscription Rock had become a well-recognized landmark affording a welcome respite for wayfarers going west or east. In that year Samuel Cozzens camped at El Morro at a "most delightful" place located "by the side of a spring of water which bubbled up from beneath the very corner of this rock. . . ."<sup>30</sup> Sometime during the 1850s or 1860s, probably the latter, Captain Charles Deus, of Colonel Christopher Carson's expedition against the Indians, inscribed his name on the rear wall of the tank.<sup>31</sup> During the railroad survey of 1867-68, William A. Bell visited El Morro, but unfortunately offered no further knowledge of the appearance of the water pool.<sup>32</sup>

#### E. Bandelier, Cushing, and Hodge at Inscription Rock

The next visitors to El Morro who commented to any extent on the pool were not emigrants and were not accompanying military columns. They were social scientists, whose province was the study of aboriginal man. In the late 1880s a noted archaeologist and two prominent ethnologists visited

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27. See U.S. House of Representatives, "Wagon Road from Fort Defiance to the Colorado River," 35 Cong., 1 Sess., H. Ex. Doc. No. 124, reproduced in Lewis Burt Lesley (ed.), *Uncle Sam's Camels: The Journal of May Humphreys Stacy Supplemented by the Report of Edward Fitzgerald Beale (1857-1858)* (Cambridge: Harvard University Press, 1929), pp. 278-80.

28. Stacey Journal in Lesley, *Uncle Sam's Camels*, p. 85.

29. John Udell, *Journal of John Udell, kept during a Trip across the Plains, Containing an Account of the Massacre of a Portion of His Party by the Mohave Indians, in 1858* (Suisun City: Solano County Herald, Printer, 1859; facsimile, New Haven: Yale University Library, 1952), p. 16.

30. Cozzens, *The Marvellous Country*, p. 304.

31. Slater, *El Morro*, pp. 44-45.

32. William A. Bell, *New Tracks in North America: A Journal of Travel and Adventure Whilst Engaged in the Survey for a Southern Railroad to the Pacific Ocean in 1867-1868* (orig. pub. London, 1869; reprint, Albuquerque: Horn and Wallace, Publishers, 1965), p. 403. Opposite p. 404 is a lithograph of El Morro, showing the pine tree at the approximate site of the pool. It is "an exact copy of a photograph taken by our professional artist. . . ." *Ibid.*

Inscription Rock--Adolphe Francis Bandelier, Frank Hamilton Cushing, and Frederick Webb Hodge. Bandelier and Cushing visited El Morro together in 1888. Wrote Bandelier concerning the water pool:

General Simpson states that there was a spring at Inscription Rock forty years ago, but to-day it has been sought for in vain. Water-holes have been met with, but they are not permanent. Either the spring has disappeared recently, or all surface traces of it have been purposely obliterated.<sup>33</sup>

Bandelier went on, fairly destroying the myth of the El Morro "spring":

According to Simpson the spring lies in the very corner where the southern wall of the projecting spur touches the main body of the mesa, but I can certify to the fact that there is no longer any trace of it on the surface. Vargas, in 1692, found only water in a tank, and no spring.<sup>34</sup>

Bandelier and Cushing had ample time to examine the tank and to finally resolve the question of the presence of a spring, for the pool was nearly dry during their stay.<sup>35</sup>

Hodge, of the Bureau of American Ethnology, came to El Morro in April 1889.<sup>36</sup> He published no recollections of the water tank, but he later observed that the arroyo just east of the pool, formed by the runoff, was practically non-existent. "I could easily step across the gully at its widest place," he remembered.<sup>37</sup> Since that time constant erosion has cut the ravine increasingly deeper until today it bears little resemblance to its nineteenth century appearance.

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33. A. F. Bandelier, "Final Report of Investigations Among the Indians of the Southwestern United States, Carried on Mainly in the Years from 1880 to 1885." Part II. *Papers of the Archaeological Institute of America*. American Series. IV (Cambridge: John Wilson and Son, University Press, 1892), pp. 332-33.

34. *Ibid.*, p. 332n.

35. Slater, *El Morro*, p. 48.

36. Ella Robinson of the Southwest Museum to Mrs. Kirk, August 13, 1954. Correspondence in the library of the National Park Service Southwest Regional Office, Santa Fe, New Mexico.

37. Hodge to E. Z. Vogt, date unknown, quoted in *Southwestern Monuments Monthly Report*, February, 1934, p. 27.

#### F. Summation of Pre-1900 Evidence

From the foregoing accounts it seems clear that the water pool at El Morro has undergone substantial modification to bring it to its present state. The most significant change has been the complete obliteration of the sand bank that once surrounded the catchment basin. During the last half of the nineteenth century, as the various narratives attest, the rear of the tank was easily accessible to those individuals desirous of leaving their names carved in the sandstone wall. Between 1846 and 1875 no less than forty-three inscriptions were placed on the rock behind the basin. Another was placed there in 1898.<sup>38</sup> While the level of the water pool and, consequently, the size of the sand bank were subject to fluctuations with the amount of precipitation, it appears that the presence of the bank was fairly constant during most of the period.

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38. Slater, *El Morro*, pp. 56-58. The relative dearth of names after 1875 might be explained by the diversion of emigrant traffic to the northern route which occurred at about that time.

### III. CHANGES TO THE POOL UNDER THE NATIONAL PARK SERVICE

#### A. Vogt Describes the Pool

Presumably these conditions existed in 1906 when El Morro became a national monument and in 1916 when the National Park Service assumed administration of the site. Evon Z. Vogt was then appointed custodian of El Morro.<sup>39</sup> Years later he described the appearance of the pool when he took charge:

When I first became custodian I recall that the cove was level with sand to the marks still visible [in 1942] on the surrounding walls. Most of those inscriptions [sic] left there by soldiers from Ft. Wingate in the 1850ies and later were carved while the men stood on the ground. A few must have made ladders, stood on boxes, or logs to get their names up so high.<sup>40</sup>

Vogt also noted that in 1916 the arroyo east of the pool "was 15 feet wide and fully that deep," citing a tendency towards erosion at that place caused by runoff from the pool.<sup>41</sup>

#### B. Enlarging the Basin

The early 1920s marked the beginning of a period in which several major alterations were made to the pool and the pool area. Vogt became convinced that a spring had indeed existed there at one time, having learned from older residents in the area that the soldiers from nearby Fort Wingate acquired water when the pool was dry by digging in the sand.<sup>42</sup> As Vogt explained:

If [a spring] . . . was there in 1849 [as Lieutenant Simpson claimed] I thought by digging that it could be developed and used for drinking water. \* \* \* At about 10 feet [down] we encountered water. It was very cool [cold] and good and worth more work. So we knocked the heads out of wooden barrels of 50 gallon capacity and

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39. Douglas W. Sievers, "El Morro: A Unit History" (unpublished manuscript dated August 14, 1970, in the library of El Morro National Monument), p. 4.

40. Vogt to Baxter, October 11, 1942.

41. *Ibid.*

42. This despite the fact that "no one I could find remembered that there was a spring there. I talked with [Charles F.] Loomis [sic], F. W. Hodge, and many local people about it." *Ibid.*

thus lined the hole to prevent cave-ins. A bucket with rope furnished [sic] the means of getting water out. Then I bought an antifreeze pump and boxed the top of the well with heavy plank. The pump rested on a firm foundation of timbers and served very well for one season.<sup>43</sup>

Evidently this groundwater supply went dry, so Vogt and his companions decided to enlarge the size of the catchment basin to provide more water for area ranchers and their stock. "With teams and scrapers we dragged out the dirt from the whole rincon. This took us three or four days as there was a great accumulation of sand in the cove."<sup>44</sup> By 1923 Vogt had settled on the erection of a small dam at the pool which would help retain water otherwise lost in runoff. In that year Frank Pinkley, who was general superintendent of the Southwestern National Monuments, notified National Park Service Director Stephen Mather that he had examined "the pool at the foot of the cliff which Mr. Vogt had made. . . ." Vogt and Pinkley discussed Vogt's plan for "increasing the capacity of the pool by building a small cement dam" at the site.<sup>45</sup>

### C. The Concrete Dam

Vogt and his workers completed the concrete dam in 1926. When finished, it measured 49 feet 7 inches along its top, with a height of 13 feet 9 inches.<sup>46</sup> "There was a let down pipe on a 3 inch elbow inside the water so we could drain and clean the reservoir which got to be a large body of water."<sup>47</sup> Thereafter the pool served as a water storage facility designed to provide drinking water year long for local residents and for personnel stationed at El Morro National Monument.<sup>48</sup> Remembered Vogt: "Ranchmen bort [brought] their horses in to water when they came with their water barrels. In order to avoid the live stock to get close to the dam we laid a pipe clear down beyond the shelter house so they could get water in front of the house."<sup>49</sup> But by the

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43. *Ibid.*

44. *Ibid.*; The workers uncovered numerous Indian artifacts in the process of enlarging the pool. *Ibid.*

45. Pinkley to Mather, October 1, 1923, in "Casa Grande Ruins. Early History, 1902-September 1923 (Including some correspondence & Reports on Tumacacori and other National Monuments)" (unpublished manuscript in the library of the National Park Service Western Archeological Center, Tucson).

46. Diagram, "Old Concrete Dam, El Morro Nat'l Monument, March 26, 1943," by George W. Baxter, in the library of El Morro National Monument.

47. Vogt to Baxter, October 11, 1942.

48. *Ibid.*

49. *Ibid.*

early 1930s a clear problem presented itself in the tendency for the standing water to rapidly become stagnant. Furthermore, the pool became a breeding ground for mosquitoes and a home for various water creatures. The water, wrote Vogt, "does not appear inviting to the average visitor--especially when they see the live stock it contains."<sup>50</sup>

#### D. Filling the Arroyo

Early in 1932 Vogt reported that "the storage reservoir in the Cove has a great supply of water, with little seepage going on."<sup>51</sup> Such "seepage" probably caused negligible erosion of the arroyo before the dam, but apparently the ravine had become wider and deeper from the water runoff prior to the dam's construction. In late 1933 Vogt had fifty-eight men working for him under the auspices of the newly created Civil Works Administration. One of their primary tasks lay in filling the arroyo. Vogt's incentive was historically inspired; he wanted to restore the ground in front of the reservoir to what "we thought it was when the early Spanish parties visited there."<sup>52</sup> The project lasted through the winter when the ground was largely frozen and the pool iced over. Vogt described the procedure:

Through daily plowing we have been able to readily loosen the dirt so that the fresno and slip scraper could pick it up and deposit it in the great arroyo which had been washing an ugly scar from the water cove across the landscape in the fore ground of the south side of the cliff.

Fearing a snowy spell, we put a good sized force at work on erasing this arroyo. For eight days we worked twelve teams and about 20 men on the job of filling in the ditch which was 15 feet deep and 30 feet wide in places. By blasting down the sides with dynamite, the men soon made two crossings passable to teams which then pulled in great quantities of dirt into the arroyo. It is planned to use the dirt from both sides and thus create a gentle valley where, through careful planting of gramma grass protected by a nurse crop of some kind, we may be able to restore the sod.<sup>53</sup>

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50. *Southwestern Monuments Monthly Report*, November, 1931, p. 3. During the summer of 1933 Seasonal Ranger Alfred Peterson reported that "the 'water dogs' in the cove (really the tadpole stage of the salamander) attract quite a bit of attention. The prehistoric peoples who used water from the cove quite certainly were familiar with the same animals. This is evidenced by the pictograph on Pictograph Point which quite plainly shows a 'water dog' gills and all." *Southwestern Monuments Monthly Report*, July, 1933, p. 11.

51. *Southwestern Monuments Monthly Report*, May, 1932, p. 2.

52. Vogt to Baxter, October 11, 1942.

53. *Southwestern Monuments Monthly Report*, January, 1934, pp. 17-18.

When the task was completed in April 1934, Vogt estimated the amount of fill in the arroyo at 15,000 cubic yards.<sup>54</sup>

#### E. Use of the Pool

The pool continued to be a principal water source for area residents throughout the 1930s. During these years park visitation remained low, and a large proportion of those people who came to El Morro came solely for water which they transported away. Of 412 people who came to El Morro in June 1933, 146 were local residents seeking water. "They were attracted," wrote Ranger Peterson, "by the same feature that probably was the chief attraction to the early Spanish explorers and colonists, as well as the prehistoric inhabitants of the ruined pueblos of El Morro."<sup>55</sup> But the days of water hauling ended in the late 1930s with its prohibition by the government. One reason cited was the destruction of vegetation in the vicinity of the pool caused by the wagon traffic.<sup>56</sup>

#### F. Description of the Tank in the 1930s

As late as the mid-1930s, even after undergoing its transformation under Vogt's direction, the water tank retained some of its early characteristics. The sand bank surrounding the pool was still in evidence during dry seasons. Many of the historic inscriptions were still visible on the rear wall. Later these would be obliterated by erosion and by falling rock. Elmer Seybold, who served as a seasonal ranger at the monument in the summers of 1934, 1935, and 1936, recalled that the water tank was approximately waist deep during his tenure.<sup>57</sup>

Evon Z. Vogt ended his twenty-year stewardship of El Morro in 1936. A short time later, investigation of the groundwater situation at the monument began. Commenting on the pool contents, Geologist Charles N. Gould reported that "the water is always stagnant. We were told that the greater part of the water now in the pool came from a rain two years ago. The pool contains many amphibians which may be seen swimming in the water."<sup>58</sup> Other geologists agreed with the assessment in commenting on the enlarged tank: "The capacity

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54. *Southwestern Monuments Monthly Report*, August, 1934, p. 69.

55. *Southwestern Monuments Monthly Report*, June, 1933, p. 13.

56. Sievers, "El Morro: A Unit History," pp. 11-12.

57. Lee Dalton, "Report of Visit by Elmer Seybold, November 28, 1971," in notebook containing miscellaneous material relating to El Morro, in the library of El Morro National Monument.

58. Charles N. Gould, "Second Geological Report on El Morro National Monument, New Mexico" (unpublished manuscript dated 1938 in the library of the National Park Service Western Archeological Center, Tucson), p. 3.

of the natural basin has been increased by a concrete wall so that a perennial supply adequate for domestic purposes is maintained. [The water] . . . is not potable, however, in its natural state."<sup>59</sup>

#### G. Destruction of the Dam

By the 1940s the concrete dam was showing its age. During the early summer of 1942 there occurred some erosion and seepage at the base of the dam which was temporarily rectified by packing ten cubic yards of clay against its back side.<sup>60</sup> No improvement was undertaken, however, for on the night of August 10 a huge slab of sandstone broke away from the towering cliffs above and crashed full force into the pool, totally destroying the dam.<sup>61</sup> Several tons of stone filled the tank and in addition, according to the then El Morro Custodian George W. Baxter,

the crevice above the pool still held a large amount of dirt and stone which had to be removed before it was safe to work on the rocks below. In order to do this the men had to descend the cliff from the top on ropes, coming down approximately 175 feet. They loosened the rocks by prying and shoveling. When once loosened they would go tumbling 100 feet to enlarge the pile over the dam.<sup>62</sup>

Cleanup from the rock slide took several months. Farmers around El Morro contributed their vehicles and their help and the main task occurred between October 1942 and March 1943. The huge chunks of rock had to be broken into smaller pieces so they could be hauled off by trucks. In all, 1,125 truck-loads were removed from the pool area and placed in ravines and arroyos hit by erosion.<sup>63</sup>

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59. H. E. Rothrock and H. H. Hawkins, "Report on the Geology of El Morro National Monument with Special Reference to Underground Water" (unpublished manuscript dated May, 1939, in the library of the National Park Service Western Archeological Center, Tucson), p. 1.

60. *Southwestern Monuments Monthly Report*, August, 1942, p. 11.

61. *Southwestern Monuments Monthly Report*, September, 1942, p. 12.

62. Annual Report, El Morro National Monument, June 27, 1943, in "Correspondence regarding the re-building of the dam and removing the rock from the rock slide of August 10, 1942" (file folder in the library of El Morro National Monument).

63. *Ibid.*; Most of the rock was placed in the swale below the dam previously filled in by Vogt. *Southwestern Monuments Monthly Report*, January, 1943, p. 11.

## H. Rebuilding

Initial plans were to completely replace the demolished dam. Later, National Park Service engineers, in the interest of economy, settled on building a new concrete face on the inside of the dam. Details of the construction were given by Custodian Baxter in his annual report:

A trench 17 inches wide and five inches deep was cut out of the solid rock for the new dam to rest on, both at bottom and sides. Another trench was cut in the first trench to a depth and width of six inches. Reinforcing steel was obtained from Aztec Ruins National Monument. A line of horizontal steel bars, 8 inches apart and 2 inches from the inside face of the dam were placed inside the forms to control cracking where the dam is exposed to the sun above the water line. The intake pipe at the dam was lowered 50 inches and this caused 213 feet of pipe to be lowered, so that now there is a continuous fall of water all the way from the dam [for domestic use purposes].<sup>64</sup>

When completed in 1943 the modified dam had a length of fifty feet, a height of thirteen feet, and an average thickness of fourteen inches. Furthermore, the capacity of the reservoir was increased to 197,500 gallons with the lowering of the gravity controlled water line.<sup>65</sup>

## I. Current Plans for the Pool

The repair work accomplished in 1943 constitutes the last important modification to the water pool area by the National Park Service. In 1961 a well was acquired for the monument and use of the pool for domestic water supply purposes was stopped.<sup>66</sup> By 1970 the pool with its old concrete lip constituted an eyesore that detracted from the historical scene at El Morro. Interest mounted to restore the tank as closely as possible to its appearance when the conquistadores and later sojourners stopped and drank of its con-

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64. Annual Report, June 27, 1943. See also Baxter's diagram, "Old Concrete Dam, El Morro Nat'l Monument, March 26, 1943," showing the entrance prepared for trucks hauling away debris. Library, El Morro National Monument. Other details are given in "Repairing Dam, Historic Pool, El Morro National Monument" (unpublished manuscript dated 1943 in files of Southwest Regional Office, Santa Fe). Total cost of rebuilding the dam was \$2,938.13. Cost breakdown appears in Ross A. Maxwell, "Narrative Report, Reconstruction of Dam and Water Reservoir, El Morro National Monument, Account No. 602 ER-FFF, 1942-43" (unpublished manuscript in the library of El Morro National Monument).

65. Maxwell, "Narrative Report, Reconstruction of Dam and Water Reservoir."

66. Sievers, "El Morro: A Unit History," p. 14.

tents.<sup>67</sup> As National Park Service Southwest Regional Historian William Brown expressed it, "The intent is to naturalize it, restore it to historic times. To leave it alone perpetuates a modern manipulation of this key feature, to the detriment of historical atmosphere and esthetics."<sup>68</sup>

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67. See, for example, Memorandum, Associate Director, Southwest Region, James Eden to General Superintendent, Navajo Lands Group, August 27, 1970, in the files of the National Park Service Southwest Regional Office, Santa Fe.

68. Memorandum, William Brown to John Henneberger, August 7, 1974, in the files of the National Park Service Southwest Regional Office, Santa Fe. Tentative arrangements have been completed to restore the pool to a conjectural appearance as it might have been modified for use by Pueblo Indians, a condition archeologically supported to an extent by the remains of the old dam uncovered by Evon Z. Vogt in the early 1920s. See the drawing plan entitled "Historic Pool Rehabilitation, El Morro National Monument," in the files of the National Park Service Southwest Regional Office, Santa Fe.

#### IV. CONCLUSIONS

From the historical evidence cited it is highly probable that the El Morro pool was never anything more than, as Villagrá termed it, "a quiet tank of cold water." The amount of water it contained varied, but there certainly was never as much present in the natural basin as there is in the artificial one there today. In 1692 Vargas called it a "shallow pool . . . in which rain water is collected," and it seems exceedingly doubtful that it historically ever contained an amount anywhere approaching its present capacity. The earliest dam would have been more of a lip formed by sediment brought down from above by the rushing water. This became the rim of the pool; when too much water accumulated, the excess simply ran over. Otherwise the pool lost water by process of seepage into the ground and evaporation into the air.

The shallow character of the tank is consistent with evidence suggesting that a sand and soil embankment once completely surrounded the water. In 1851 Dr. Woodhouse observed "an abundance of grass, but few flowers" encircling the catchment basin, and Abbé Domenech described the tank as "a circular basin surrounded by verdure." While the extent of the embankment must have varied with changes in the level of the water pool, it appears that it was present to some degree most of the time, as numerous historical inscriptions carved on the rear wall of the cove attest. There is evidence, too, that the pool was once confined to a smaller area than it is today, logically located immediately beneath the rock wall over which the water plummeted. Evon Z. Vogt uncovered the intact remains of a post-and-rock dam probably erected by Indians during the nineteenth century. Vogt said this dam had been placed some distance above where he later constructed the concrete dam.

Under the administration of the National Park Service a number of alterations have been made to the pool area. Only one had the apparent effect of restoration to an earlier era--that project completed by Vogt in the early 1930s to fill in the deep arroyo directly in front of the pool. While Vogt acted primarily to forestall erosion, he had knowledge of the previous appearance of the site from Frederick Hodge, who had visited El Morro in the 1880s and recalled that the arroyo was so small he could step across it. The major changes, however, were more manipulations for the purpose of insuring an available water supply. In the 1920s the catchment basin was dredged out and greatly deepened. Later, in 1926, the concrete dam was built for the stated purpose of "increasing the capacity of the pool." The dam lasted for sixteen years, until it was partially destroyed in the rock slide of 1942. Repaired, it held the monument's sole water supply until 1961.

The El Morro water pool has served man through the ages. Today it barely resembles its historical appearance when it quenched the thirst of countless Indians, Spanish soldiers, and emigrants and their livestock. Today the pool is an ex-reservoir, too large to approximate its appearance in former centuries when, judged by the evidence, it was smaller, shallower, and ringed by a narrow embankment on which men could walk. If restoration of the pool to its original appearance is contemplated, these basic facts must be honestly considered.

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## **ILLUSTRATIONS**

Illustration 1.

"Spring at Inscription Rock." The pool  
at El Morro as it appeared in 1849 at  
the time of Lieutenant James H. Simpson's  
visit.

Lithograph from a drawing by Richard H.  
Kern, in S. Ex. Doc. No. 64, 31 Cong.,  
1 Sess., 1850.



Illustration 2.

The El Morro Tank in July 1924, before erection of the concrete dam. Note low level of water and the sand bank along the wall.

Photo by C. H. Dane, 1924.  
Courtesy of the U.S. Geological Survey,  
Denver, Colorado.

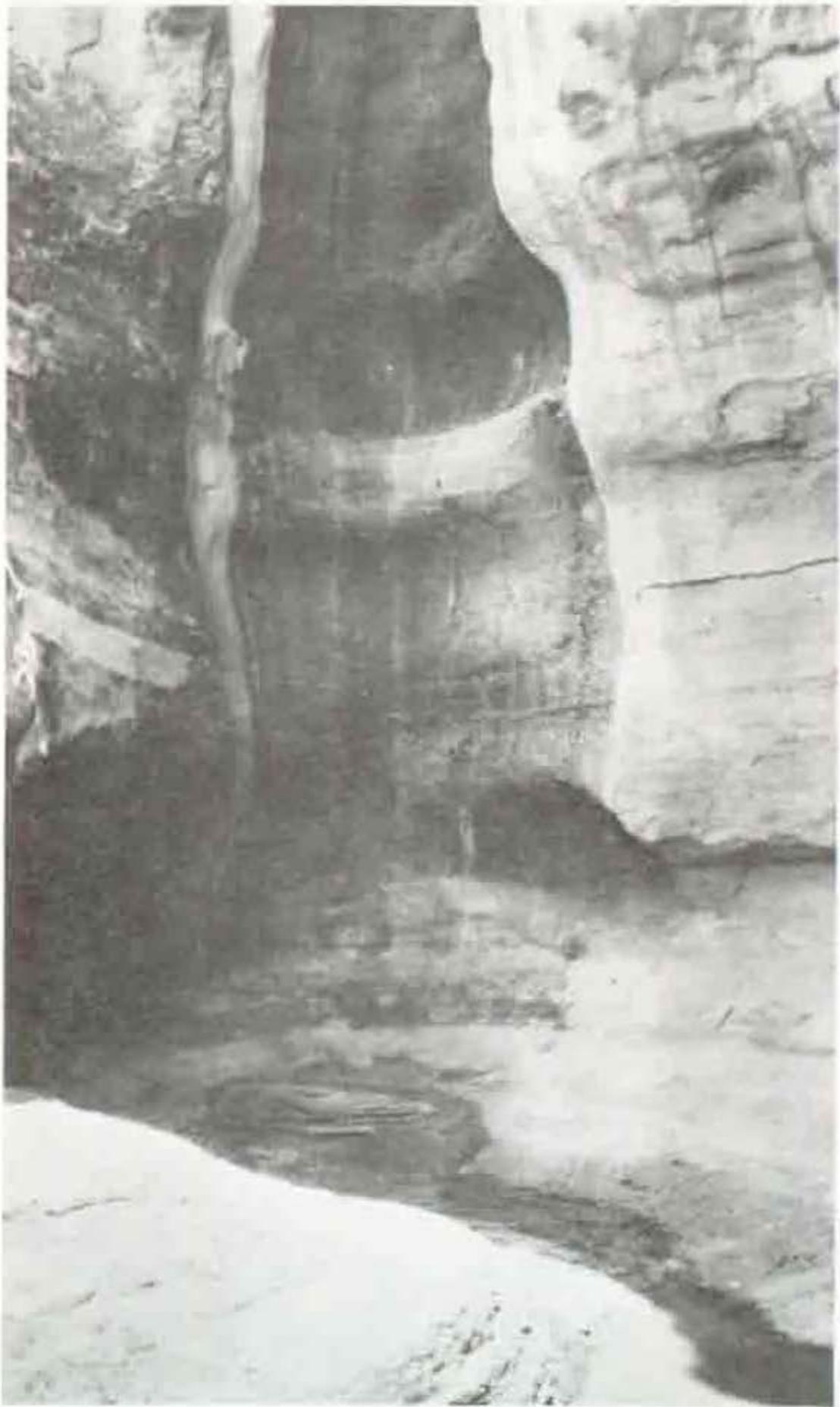


Illustration 3.

View of the reservoir about 1928, showing completed concrete dam. Note the eroded arroyo below the dam.

From G. P. Hammond and A. Rey, *Expedition into New Mexico Made by Antonio de Espejo*. Quivira Society Publication No. 1, 1929. Courtesy of Arizona Historical Society.

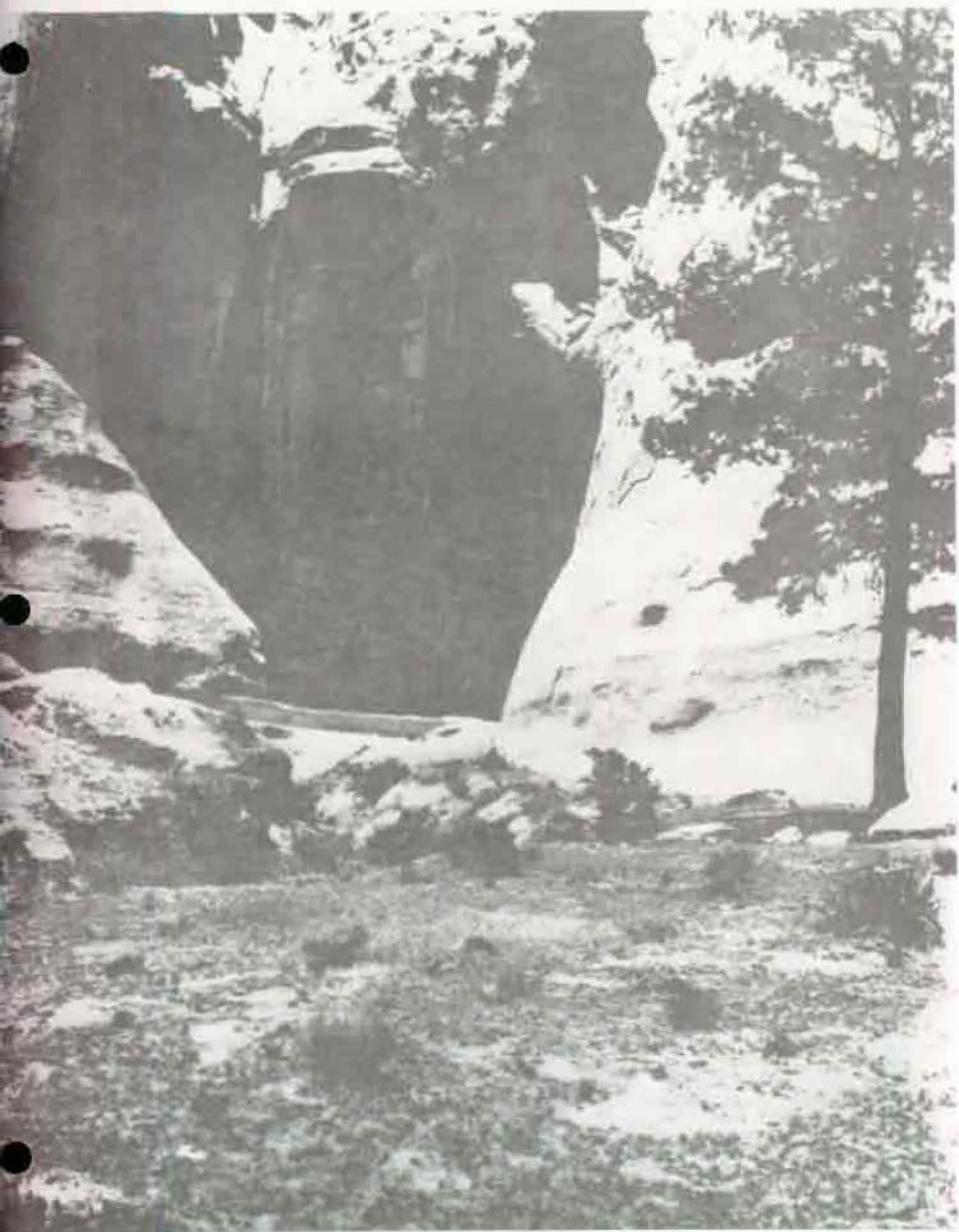


Illustration 4.

Top: View of the arroyo below the dam in 1933, showing wooden barrier erected to retard erosion.

Photo by Evon Z. Vogt, courtesy of El Morro National Monument.

Bottom: The same area in 1934, after the arroyo had been filled.

Photo by Evon Z. Vogt, courtesy of El Morro National Monument.



Illustration 5.

View of the El Morro Tank in 1934, showing the concrete dam, complete with runoff facilities, and the site of the filled-in arroyo. Note the rocks and boulders precariously poised above the pool.

Photo by George Grant, courtesy of the National Park Service Western Archeological Center.



Illustration 6.

Rock fall at El Morro, August 1942. View of the area where the slide originated.

Photographer unknown. Courtesy of the National Park Service Western Archeological Center.



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Illustration 7.

Rock fall at El Morro, August 1942. The historic pool after the slide. Ranger stands on the destroyed concrete dam.

Photographer unknown. Courtesy of the National Park Service Western Archeological Center.



Illustration 8.

View of the pool taken about 1950, showing the restored dam and a boulder remaining from the 1942 rock slide.

Photographer unknown. Courtesy of the National Park Service Western Archeological Center.



Illustration 9.

The pool area and dam viewed from above, 1975.

Photo by Daniel Reiley, courtesy of National Park Service Southwest Regional Office.



Illustration 10.

Detail of concrete dam construction.

Photo by Jerome A. Greene, 1977.



Illustration 11.

View of the historic pool today, showing lip of old dam and present terraced effect.

Photo by Jerome A. Greene, 1977.



As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, and parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration. NPS 1261

