



Mug House

A distant rumble of thunder,
we look to our water jars,
we are ready

For the rain to jet from the pour-off
through the notch at the top of the rimrock
south of our dwelling alcove

Into the cistern our men have built
at the base of the cliff,
now dry and waiting

Twenty families
to drink from mugs we have fashioned
out of the earth

To cook what we have grown
on the mesa above and terraces below
the corn, beans and squash

Water the turkeys we keep
for meat and feather blankets,
adobe water for building our

Sacred kivas, storage and living places.
Springs and seeps to our north and south
such a long hard walk with the heavy water jars

We would gladly make,
but no trickle issues from the lake
at the center of the earth

We hear only the rumble of thunder.

(in celebration of Ken and Ruth Wright's
paleohydrological work at Mesa Verde)





Timely Offerings

Before they leave the ancient Pueblos
two baskets neatly stack beneath a large
inverted bowl shaped like a helmet. In
the bottom basket a cache of coarse ground
corn, in the upper a smaller pile of
finely ground corn as fine as pastry flour,
surrounded by ceramic ladles, nest
within each other. Then torch the kiva.
Each of many groups spread across the arc
from Chimney Rock to Sleeping Ute Mountain
do this and move on. Many offerings
time the Colorado ground we walk on.

(inspired by Craig Childs' House of Rain)



Two Story House: Was W.H. Jackson Right About the Water Cistern?



My wife, Bobbie, and I joined Ken and Ruth Wright on the weekend of May 6-7, 2006 to further examine how the ancient Puebloans of Mesa Verde obtained drinking water.¹

Ken and Ruth had included us in the 2003 survey team that verified the existence of the Box Elder Reservoir, the fourth reservoir they documented as having been operated within Mesa Verde National Park between 750 and 1100 A.D.

When Ken and Ruth were preparing their essay on Far View, Morefield, Sagebrush and Box Elder reservoirs for the *Citizen's Guide to Colorado's Water Heritage*, published by the Colorado Foundation for Water Education, I sent them W.H. Jackson's essay "Ancient Ruins in Southwestern Colorado" appearing in Volume I of the Hayden Survey bulletins published in 1875.

Led by John Moss, a gold prospector who had seen Mancos Canyon ruins in 1873,² Jackson sighted and climbed up to Two Story House in 1874. Jackson described an elegant two-story ancient Puebloan structure he called a "little human eyrie" perched up "in its little crevice like a swallow's nest" 800 vertical feet above the Mancos River. Attached to it was a "large reservoir or cistern, the upper walls of which came nearly to the top of the window."³

Jackson's report and photography of an ancient cliff dwelling in southwestern Colorado led to many more "discoveries." William Henry Holmes, another member of the Hayden survey, explored McElmo Canyon in 1875, reporting a number of large ruins including "a triple-walled tower." Thirteen years later, rancher Richard Wetherill and his brother-in-law Charles Mason "found" within the recesses of what is now the park the "Cliff Palace" Jackson and Holmes had missed.⁴

Ken hadn't seen Jackson's essay before, but knew of a reported cistern at Mug House within Mesa Verde National Park that could serve as a comparison. At the request of the Park Service, in connection with the park's 100th Anniversary, he and Ruth had agreed to present lectures at the site of the Morefield Reservoir on the mornings of May 5 and 6. They scheduled a hike to Mug House for the afternoon of the 6th and to Two Story House, on Ute Mountain Ute tribal lands, for the 7th to examine water features.

Saturday, May 6, 2006

Seen from Cortez, the land encompassing the park appears to be a continuous mountain range rising up from the Montezuma Valley and lying east-west to Sleeping Ute Mountain. Navigating the park by car from the entrance station, one rides the ridgeline of

five watershed mesas stretching south towards the Mancos River like fingers of a gigantic hand laid upon the land.

Within the park, Moccasin Mesa, Park Mesa, Chapin Mesa, Long Mesa, and Wetherill Mesa are prominent islands in the sky cut by canyons: among them, Morefield Canyon, Prater Canyon, Moccasin Canyon, School Section Canyon, Soda Canyon, Spruce Canyon, Navajo Canyon, Wickiup Canyon, Long Canyon, and Rock Canyon.

Receiving runoff waters of these canyons, the Mancos River flowing from the La Plata Mountains turns in a great southwesterly bend around the eastern and southern boundaries of the park into the Ute Mountain Ute Tribal Park.

Morefield Reservoir and Spring

After breakfast with Ken and Ruth Saturday morning at the Holiday Inn Express in Cortez, we meet a group of scholars at the Morefield Campground within the park. Ken and Ruth arrived earlier this week to participate in an archeology conference devoted to historic and new interpretations about how the ancient Puebloans lived at Mesa Verde and why they had all departed by 1300 A.D.

Congress established Mesa Verde National Park on June 29, 1906.⁵ Alone among the national parks, Mesa Verde National Park was created to preserve archeological values. The late 19th and 20th century scientific explorations of Mesa Verde included collection of artifacts and the unearthing, documentation, and reconstruction of ancient living sites.

Earlier this week, Hopi tribal members helped to rebury human remains and funerary objects of the Puebloans. Mesa Verde is sacred ground to the Ute Mountain Ute people, whose reservation includes many ancient Puebloan sites, and to the Hopi, whose ancestral migrations involved passing through here.



Two Story House with Jackson's supposed cistern (on right)

Greg Hobbs

In describing a feature of Two Story House that resembled a water vessel, keen-eyed Jackson was interested in how they had lived. For how could they have survived in this remote and semi-arid land without great ingenuity in the collection of water?

The answer is they carefully conserved springs, seeps, sandstone pot holes, check dams, cisterns, and reservoirs to marshal the water treasure. Ken and Ruth have systematically documented this in their late 20th and early 21st century work. Particularly remarkable are the reservoirs.

In 1893, the archaeologist G. Nordenskiöld found what he called “conclusive evidence that the cliff-dwellers had to contend with the same dry climate and the same scarcity of water as now obtain in these regions.”⁶ He described an ancient reservoir — enclosed by a circular wall, with a ditch running into it — that he found on Chapin Mesa. Nearby were the ruins of a considerable village. Referring to the ruins of ancient irrigation works found in Northern Arizona, Nordenskiöld conjectured, “It is not at all improbable that irrigation by artificial means was in use even among the prehistoric inhabitants of the Mesa Verde.”⁷

Working with archeologists Jack Smith, David Breternitz, and Jim Kleidon, and other experts who have included soil scientists and hydrologists, Ken and Ruth have produced estimates of the operational life of these drinking water reservoirs (water being too scarce and precious for irrigation in Mesa Verde, as it turns out):

- Morefield Reservoir in Morefield Canyon (AD 750–1100), 4 feet deep, 50-foot diameter, 120,000 gallons;
- Far View Reservoir (also known as Mummy Lake) on Chapin Mesa (AD 950–1100), 4.6 feet deep, 90-foot diameter, 80,000 gallons;
- Sagebrush Reservoir on an unnamed mesa west of Chapin Mesa (AD 950–1100), 5.2 feet deep, 70-foot diameter, 90,000 gallons;
- Box Elder Reservoir in Prater Canyon (AD 800–950), 20 feet deep, 220-foot diameter, 100,000 gallons.⁸

Our morning itinerary takes us into Morefield Canyon. Scholars accompanying us include Dr. Jonathan Upchurch, transportation expert for Mesa Verde National Park; his wife, Betty Upchurch, the park’s librarian; and Eric Janes, recently retired Bureau of Land Management hydrologist and ecologist.

Ken and Ruth explain how a trench across this Morefield sediment mound, cut with permission of the Park Service in 1997, revealed sediment layers that incontrovertibly proved the existence of a reservoir, not a dance platform, as Park Service employees had previously speculated it to be.

Though obscuring vegetation is growing back after the year 2000 Bircher Fire, amidst the grasses we discover stones that track the past of the 1,400-foot diversion canal leading into the reservoir, as well as armor stones the ancient Puebloans placed to retard erosion along the canal’s banks.

It’s amazing that the people who operated this reservoir for 350 years had nothing more than sticks, stones, baskets, and deer antlers to scoop sediment out of it and maintain the canal.

Not far down Morefield Canyon are two great kivas that served as the community centers of a population which may have reached 500 persons. The largest of the kivas had been partially excavated in the past, documented, then reburied.

While the rest of our group inspects the perimeter of the kivas, I walk directly to the east canyon wall where a spring steadily drips water into fresh imprints of wild horse hooves. Throughout the Mesa Verde country, seeps and springs most often served as the people's water supply.

Mug House and Water Cistern

Our afternoon hike takes us off the canyon rim of Wetherill Mesa along the rimrock to Mug House. This magnificent cliff dwelling is normally closed to the public, but will open this summer for ranger-led tours on a limited basis. We are fortunate to have the Assistant Superintendent of the park, Betty Janes, lead us to Mug House and its water cistern. Pete and Nancy Foster join us for this part of the day's exploration.

The trail leads us past Adobe Cave to Mug House. Adobe Cave had consisted of three rooms and two kivas which the Puebloans apparently used as building materials for the later construction of Mug House.⁹ Three red parallel zig-zag lines adorn the rear wall, perhaps telling of migrations?

Mug House sits in an alcove 200 feet long and up to 40 feet deep. 90 feet of vertical sandstone rises above it. Excavation and stabilization of Mug House in the 1960s identified 94 rooms; 40 of these are dwelling rooms; 8 are kivas.¹⁰

The kivas are larger and have more head space than the dwelling rooms. Despite thoughts that kivas were restricted to men for religious purposes, Betty Janes suggests that families may have gathered in them for warmth in the winter. With a ventilator for drawing in fresh air and a hatchway through the roof to expel smoke and stale air,¹¹ kivas could have served many community functions.

We walk across open courtyards that dot Mug House, step carefully into dwelling units, peer into the kivas, and spot the round small center holes — sipapus — that represent human emergence from the spirit world. We see Richard Wetherill's name inscribed on a large sandstone slab followed by the date he also carved — 1890.

We walk to the Mug House water cistern 200 yards further on. High up the cliff face, we spot a pour off notch from which water cascades into this storage vault when rain falls. The Puebloans built a ten-foot-high rock and rubble dam at the outer base of the rimrock to impound the water. Ken unpacks his tape measure. Pete and I assist.

The dimensions reported by Art Rohn in his 1971 report on the excavation and stabilization of Mug House were 22 feet long, 10 feet wide, and about 4 feet deep, with a storage capacity of 6,000 to 7,000 gallons.¹² Based on the measurements we took, Ken figures the present capacity at about 3,000 gallons. Accumulated sediment and the park's stabilization work on the embankment may account for the difference. Constant dredging of sediment must have been necessary.

The presence of this water cistern helps to explain how Mug House became a relatively large community of 80 to 100 persons. The only additional water supply consists of two springs approximately one and a half miles away. From tree-ring specimens, dates of occupation were from 736-1277.¹³

These people farmed the mesa tops without irrigation, growing corn, beans, and squash. They domesticated turkeys for a steady supply of meat, supplemented by rabbits, deer, woodrats, and squirrels. They gathered seeds and fruits, including prickly pear, pigweed, goosefoot, beebush, ground cherry, miner's lettuce, and skunkbush. Few adults survived 40 years of age and, based on burials in the vicinity, half of the children died before reaching 4 years of age.¹⁴

We hike back up to the top of the mesa and carefully approach the edge of the rimrock to see if we can spot from above the pour-off into the water cistern far below. We see a channel chipped into the rock and two parallel dirt berms, plus a rock wall built on the very edge of the rimrock.

These water features are shaped to collect and funnel water over the rimrock, but the Puebloans may not have constructed them. They may have been built during the park restoration of Mug House to direct water away from eroding this site. Note for further research!

Sunday, May 7, 2006

Two Story House

We head for the Ute Mountain Ute Tribal Park headquarters located between Cortez and Tawaoc to meet our Ute guides at 8:30 a.m.

The Ute Tribal Park encompasses 125,000 acres centering along a 25-mile stretch of the Mancos River. The Ute Mountain Ute preserve it as a primitive area to protect its cultural and environmental resources. Full-day and half-day guided tours are available to the public.

Due to recent hip operations, Ruth and Bobbie decide not undertake the climb into Two Story House. Instead they go with a guide to four cliff dwellings that are accessible from the top of Johnson Mesa. A couple from Pennsylvania, Ren and Caroline Lackey, accompanies them. The way turns out to be challenging. Descent into these remote places is by ladder from the top of the mesa down cliff faces and back out.

Our guide for the climb to Two Story House is Rickey Hayes. Eric Janes joins Ken and me for this venture onto the rimrock where W.H. Jackson in 1874 explored the first of the cliff houses ever reported to the United States public.

Rickey is part Ute and part Cheyenne. He story-tells us up an hour and a half of switchback traverses. The Utes have always been here from the earliest times, he says. Our people are from Central America. We are related to the Aztec and Maya. We are mountain people. There were seven bands of the Utes.

This was our land all across Colorado and onto the plains. We hunted and traded with other tribes. We knew all of these places up these canyons where the people came through on their migrations. But we left them alone out of respect. The Wetherills were not looking for cattle when they came through here. They were looking for what they could take and sell.



Greg Hobbs

Pottery sherds on the trail to Two Story House

Rickey explains how the juniper berry is brewed for medicine tea; how sprigs of this sweet smelling evergreen the creator placed here for the people are used for purification. He tells of drummers who drum through the night. Next month he will go up on Sleeping Ute Mountain for the sundance. He is a sundancer.

All along the trail, pottery sherds — red, brown, black, and white designs on the outside and inside of once-whole pots, broken ladle pieces, fragments of corn-grinding stones.

Belly to the ground, a snake refuses to leave our path until Rickey thumps the ground with his walking staff. He takes many opportunities to stop, so we can rest and see how the Mancos River canyon opens up the higher we get. Willow and cottonwood bud those tender baby greens of Spring.

Rickey says the river has steadily lost flow these 13 years he has guided people here. Up in the La Platas all the glaciers have melted.

Now we come to the edge of the rimrock, thread our way carefully along its sheer-wall face. I get crazy with heights like this, so I concentrate on where I put my feet to.

High on the cliff face, a horizontal ladder bridges the top of two impossibly-placed dwellings. Into a crack the people have wedged a tree-trunk ladder to get up to them.

We continue along the rimrock, turn a bend. Perched to its niche is elegant Two Story House.

We climb into it by a series of rock toeholds. Nine rooms are compressed into a small bi-level vertical space. We enter. Through window holes the arcing noonday sun slants in.

One by one we squeeze into the tall circular back room Jackson called a reservoir. Unlike the water cistern at Mug House, which is out in the open below a pour-off spout, this structure is tucked within the alcove and directly adjoins the dwelling places.

Water falling down the cliff faces would not run into it. If it did, the water would soak into the earthen walls, undermining the foundations.

Any water stored in this room would be stored in water jars. This room would also make a fine lookout onto a good length of the canyon floor below, and for seeing the stars.

We lunch on the open apron to the entry of Two Story House. Rickey tells us the migration story.

This is the fourth world. The three before were destroyed by fire, ice, and flood. These people did not leave because of drought or warfare. After dwelling in this place on their journey, they went farther south to the mesas when it was time to. The Hopi still come back to tell us how the people were on their journey when they came through here.

They kept the story of their migrations secret for a long time, but when the atom bombs exploded they started to share their prophecies. They interpret the stone panel pictures for us.

We must protect the earth and each other and not give in to greed and the easy life.

As we descend from Two Story House, Rickey explains that the gulley to the east of us has check dams the people built into it, and a series of natural sandstone potholes that trap water. That's the water source they used.

As we drive out of Mancos Canyon, Rickey stops the tribal truck for us to see the etched-in-sandstone picture panel rock the winter solstice illuminates. It tells the song of creation and emergence.

Here is Spider Woman, companion of Taiowa and the mother of the worlds to come. Next to her, Massoua, earth-god. Then the four circles of the four worlds tucked within one another. There is rain cloud with her butterfly wings. Kokopelli on his back playing his flute. See those three people emerging from that slanting crack sculpted into the end of the panel. That is the sipapu.

We get a flat tire. The van carrying Ruth and Bobbie comes along as we fiddle with how to lower the spare tire from underneath the truck. They carry us out of the canyon. Rickey stays behind.

Notes

1. Justice Hobbs's article "Mesa Verde Journal," about the 2003 Box Elder Reservoir survey, appeared in *Waternews* 12-15 (Northern Colorado Water Conservancy District, Nov. 2003). See also Gregory J. Hobbs, Jr., "The Role of Climate in Shaping Western Water Institutions," 7 *Univ. Den. Water L. Rev.* 6-10, 39-46 (2003).

2. Frank McNitt, *Richard Wetherill Anasazi* 13 (Univ. New Mexico Press, Rev. Ed. 1966).

3. F.V. Hayden, W.H. Jackson, "Ancient Ruins in Southwestern Colorado" Vol. 1, *Bulletin of The United States Geological and Geographical Survey of the Territories* 21 (Government Printing Office, 1875).

4. Douglas Waitley, *William Henry Jackson, Framing the Frontier* 155-56 (Mountain Press Publishing Company 1999).

5. Rose Houk and Faith Marcovecchio, eds., Duane A. Smith, Historical Consultant, *Mesa Verde National Park, The First 100 Years* x (Mesa Verde Museum Association 2006).

6. G. Nordenskiold, *The Cliff Dwellers of the Mesa Verde* 73 (Mesa Verde Museum Association, Inc., 1990 reprint) (1893).

7. *Id.*

8. Kenneth R. Wright, *Water for the Anasazi* 3 (Public Works Historical Society 2003); *Citizen's Guide to Colorado's Water Heritage* 7 (Colorado Foundation for Water Education 2004).

9. Arthur H. Rohn, *Wetherill Mesa Excavations, Mug House Mesa Verde National Park* 23 (National Park Service, 1971).
10. *Id.* at 43, 67.
11. *Id.* at 72.
12. *Id.* at 65.
13. *Id.* at 261, 19.
14. *Id.* at 261-62.



Unpublished manuscript.