ARCHAEOLOGY SOUTHWEST *magazine*

CONTINUE ON TO THE NEXT PAGE FOR YOUR FREE PDF

Archaeology Southwest (formerly the Center for Desert Archaeology) is a private 501 (c) (3) nonprofit organization that explores and protects the places of our past across the American Southwest and Mexican Northwest. We have developed an integrated, conservation-based approach known as Preservation Archaeology.

Although Preservation Archaeology begins with the active protection of archaeological sites, it doesn't end there. We utilize holistic, low-impact investigation methods in order to pursue big-picture questions about what life was like long ago. As a part of our mission to help foster advocacy and appreciation for the special places of our past, we share our discoveries with the public. This free back issue of *Archaeology Southwest Magazine* is one of many ways we connect people with the Southwest's rich past. **Enjoy!**

Not yet a member? Join today!

Membership to Archaeology Southwest includes:

- A **Subscription** to our esteemed, quarterly *Archaeology Southwest Magazine*
- **Updates** from *This Month at Archaeology Southwest*, our monthly e-newsletter
- **25% off purchases** of in-print, in-stock publications through our bookstore
- **Discounted registration fees** for Hands-On Archaeology classes and workshops
- **Free pdf downloads** of *Archaeology Southwest Magazine*, including our current and most recent issues
- Access to our on-site **research library**
- **Invitations** to our annual members' meeting, as well as other special events and lectures

Join us at archaeologysouthwest.org/how-to-help

In the meantime, stay informed at our regularly updated Facebook page!

300 N Ash Alley, Tucson AZ, 85701 • (520) 882-6946 • info@archaeologysouthwest.org • www.archaeologysouthwest.org

ARCHAEOLOGY SOUTHWEST magazine

SUMMER AND FALL 2014

A QUARTERLY PUBLICATION OF ARCHAEOLOGY SOUTHWEST

VOLUME 28 | NUMBERS 3 & 4

Tortuous and Fantastic

Cultural and Natural Wonders of Greater Cedar Mesa

inside this issue

ISSUE EDITOR:

William D. Lipe

ONLINE EXCLUSIVES:

For additional commentary, images, references, and links, visit our website at:

www.archaeologysouthwest.org/asw28-3-4

Cover image: Aerial view of the southern edge of Cedar Mesa along the San Juan River in morning light. In this view to the east, the San Juan River Gorge is visible at upper right, and Johns Canyon is at left. Although such spectacular geology draws visitors today, people in the distant past lived and farmed where there was arable soil on the mesa top and in some of the canyons. © Adriel Heisey.

about us

Archaeology Southwest explores and protects the places of our past across the American Southwest and Mexican Northwest. We have developed a holistic, conservation-based approach known as Preservation Archaeology. By looking forward and acting now, we are achieving protections and creating meaningful connections between people and history that will benefit generations to come. **Learn more at www.archaeologysouthwest.org.**

Archaeology Southwest is a private 501 (c) (3) nonprofit organization supported through memberships and donations, as well as grants from individuals, foundations, and corporations. For a gift of $35 or more, members and donors receive an annual subscription to ***Archaeology Southwest Magazine*** and other benefits. For more information, or to join, contact Kathleen Bader at 520-882-6946, ext. 26, or kbader@archaeologysouthwest.org. **The convenient, preprinted envelope enclosed with this issue may be used to join, renew an existing membership, or begin a gift membership.**

Archaeology Southwest

Exploring and protecting the places of our past

Archaeology Southwest Magazine (ISSN 1523-0546) is a quarterly publication of Archaeology Southwest. Emilee Mead, Publications Director. Kate Sarther Gann (kate@archaeologysouthwest.org), Content Editor. Kathleen Bader, Design Production.

Subscription inquiries:

520-882-6946, ext. 26.

Tortuous and Fantastic: Cultural and Natural Wonders of Greater Cedar Mesa

WILLIAM D. LIPE
WASHINGTON STATE UNIVERSITY

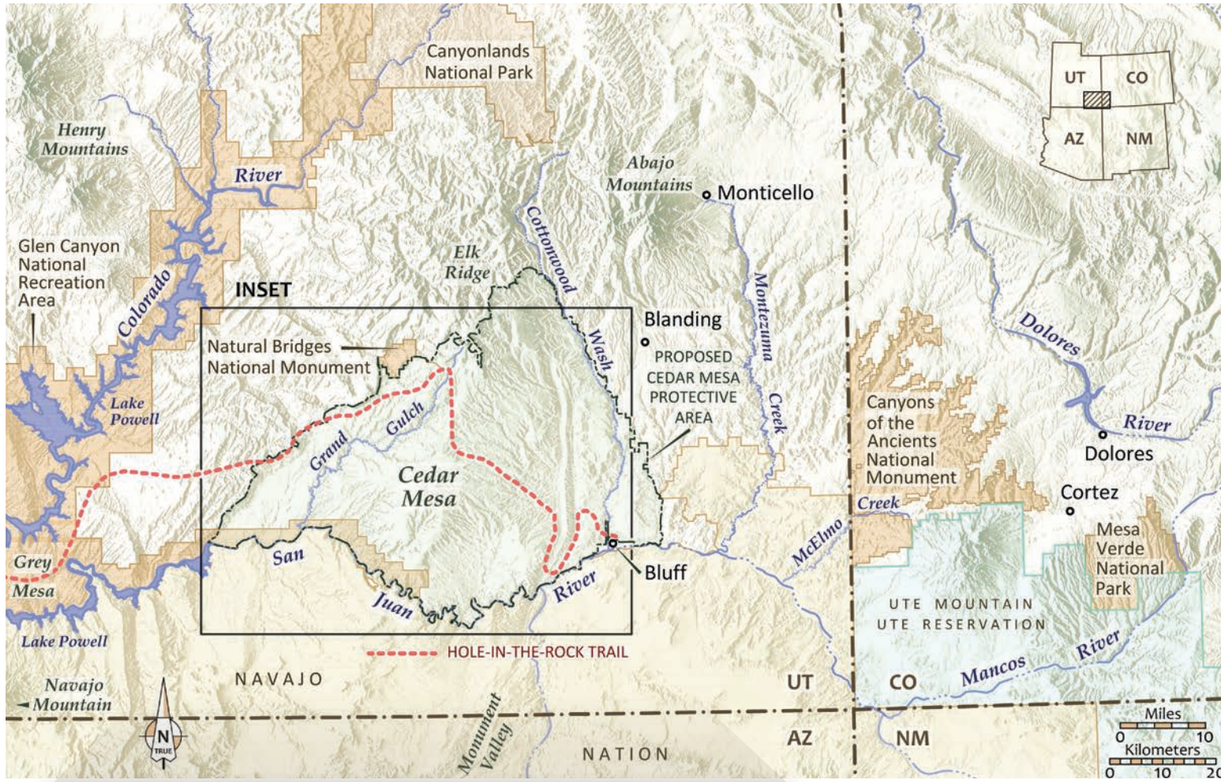
"Tortuous and fantastic," wrote archaeologist Nels C. Nelson in 1920, echoing Richard Wetherill's sentiments of some twenty-five years earlier. Nelson was describing his experience of traveling in Grand Gulch, a forbidding canyon and tributaries in Cedar Mesa, an imposing landform in southeastern Utah. Led by experienced backcountry guide and trading post operator John Wetherill (Richard's younger brother), Nelson was documenting cliff dwellings and rock art sites Richard and others had explored and excavated around the turn of the century. Some of the collections under Nelson's care at the American Museum of Natural History (AMNH) had come from these expeditions.

Morning light illuminates a cliff dwelling located just east of Comb Ridge. Since the 1890s, naturally sheltered "dry" sites in Greater Cedar Mesa's canyons have yielded perishable organic artifacts that have helped archaeologists understand the lives of Ancestral Pueblo people. Unfortunately, these same sites have been—and continue to be—prime targets for commercial looters. Sites on open ground are also vulnerable to looting, and to off-road vehicle traffic, expanding road networks, and oil and gas development. PHOTO: © ADRIEL HEISEY

Indeed, such sites are the primary reason why Greater Cedar Mesa (see pages 4–5) is an iconic area in North American archaeology. During the winter of 1893–1894, beginning at a place known as Cave 7, Richard Wetherill used stratigraphic reasoning to turn archaeological observations into culture history. He showed that an earlier farming culture without pottery ("Basketmaker") lay beneath the living surfaces of Pueblo cliff dwellings. As Fred Blackburn (pages 12–14) and Laurie Webster (pages 15–17) recount, the Cedar Mesa area was a hotbed of excavation in the 1890s. Much of this earliest work focused on obtaining extraordinary perishable artifacts from dry rock shelters on behalf of museums or to sell to collectors. Some of this work contributed to the growth of archaeological knowledge, and those few collections that went into museums such as the AMNH remain useful for research.

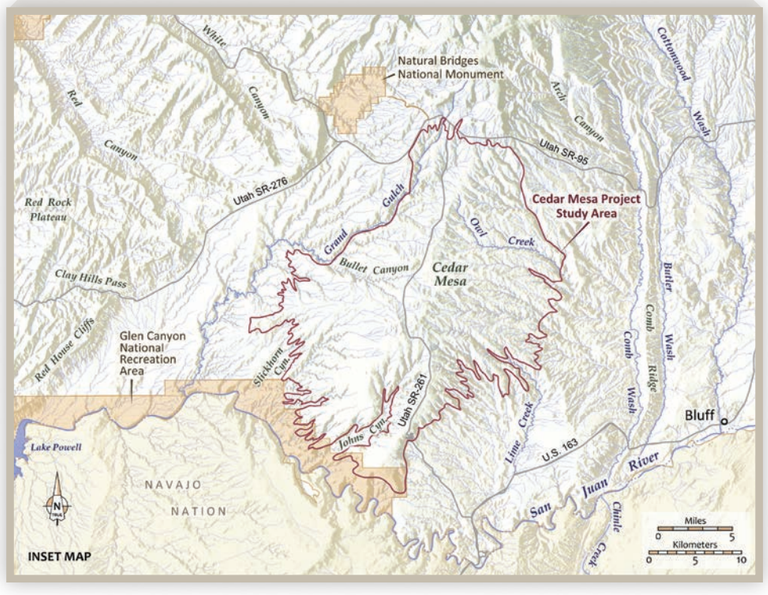
The Northern San Juan (Mesa Verde) Archaeological Area. From the A.D. 500s through 1200s, the densest populations and largest sites were in the region extending from Mesa Verde National Park in Colorado west to Cottonwood Wash in Utah. Archaeologists usually call this the Central Mesa Verde Area. Cedar Mesa is in the Western Mesa Verde Area, which was generally less well populated. The Kayenta Archaeological Area lies south of the San Juan River in southeastern Utah and northeastern Arizona. Its densest populations were south and southwest of Cedar Mesa.

The Hole-in-the-Rock Trail shows the route of the historic San Juan Mission (pages 43–44). Boundaries of the protective area proposed by the Friends of Cedar Mesa (pages 47–49) are indicated in green. TRAIL AND BOUNDARY INFORMATION COURTESY OF THE FRIENDS OF CEDAR MESA. MAP: CATHERINE GILMAN



Cedar Mesa itself is an upland formed by a geologic structure known as the Monument Upwarp. Utah State Route (SR) 261 approximates its north–south axis. The Cedar Mesa Project archaeological study area (pages 17–19 and 24–30), outlined in red, defines the highest part of the mesa. The eastern slopes extend down to Comb Wash, and on the west, the mesa includes all the canyon systems that drain into Grand Gulch. A prominent escarpment marks the southern edge of the mesa; SR-261 descends it in multiple switchbacks called the Moki Dugway. The trace of Utah SR-95 approximates Cedar Mesa's northern boundary. In this issue of Archaeology Southwest *Magazine, we refer to the highland region delimited above as "Cedar Mesa" or "Cedar Mesa Proper."*

"Greater Cedar Mesa" refers to a larger area extending from the Red House Cliffs on the west to Cottonwood Wash on the east, and from the Elk Ridge escarpment on the north down to the San Juan River on the south. This area includes multiple landform and vegetation types, but has a similar cultural sequence and archaeological site types. MAP: CATHERINE GILMAN, ADAPTED FROM A MAP BY SUE MATSON



Greater Cedar Mesa Lifeways in the Distant Past

Stewart Aitchison's natural history (pages 8–11), Adriel Heisey's aerial photographs, Sally Cole's essay on rock art (pages 36–39), and Donald Rommes's images (pages 45–46) show that Nels Nelson was not exaggerating. Although such spectacular canyons draw people to the area today, it is important to realize that the majority of the archaeological resource is *on the mesa*. The arable soils of the mesa top made Cedar Mesa Proper (see map at lower left) attractive to farmers from late B.C. times to the late A.D. 1200s. The alluvial soils of the canyons represent a small fraction of the mesa's farmland. Many, if not most, of the people who lived in the canyons or used its sheltered sites for storage, rock art expression, or burial grounds probably made part, if not all, of their living by dry farming on the adjacent mesa.

We know this, in part, through work R. G. Matson and I directed in the early 1970s—the Cedar Mesa Project (pages 17–19 and 24–30)—and through the University of Utah's contemporaneous excavation of sites affected by the rerouting of State Route 95. In recent years, Cathy Cameron and Winston Hurst have undertaken limited excavations at the Comb Wash Great House and adjacent sites, and Hurst has directed extensive surveys in Comb Wash (see map at lower left). In this issue, Hurst and Jonathan Till report their observations and analysis of Pueblo II and III cultural landscapes on Cedar Mesa Proper (pages 31–34). Information about the lives of the region's residents before the adoption of agriculture has come from Phil Geib and Dale Davidson's excavations at Old Man Cave and, as William Davis and Till describe, from thorough surface documentation of the Lime Ridge Clovis site (pages 23–24). Hurst and James Willian (pages 40–42) and Aitchison (pages 43–44) describe the region's complex (and understudied) post-Pueblo archaeology and history.

Greater Cedar Mesa Today

Greater Cedar Mesa's archaeological record documents thousands of years of human innovation, change, and movement. The rock art, buildings, and artifacts left by the people who made this landscape their own enable today's visitors to understand something of those past lives. As Josh Ewing (pages 47–49), Vaughn Hadenfeldt (page 51), and Bill Doelle (page 52) point out, the challenge is to powerfully protect that record while continuing to provide meaningful opportunities for discovery and reflection.

Most of Greater Cedar Mesa today is federal public land overseen by the Bureau of Land Management, with an office in Monticello, UT, and a seasonal ranger station on State Route 261 on Cedar Mesa Proper. Visitors should learn how to avoid inadvertently damaging archaeological sites and the environment. Access to some locations requires a permit. A link to more information is at archaeologysouthwest.org/asw28-3-4.

Food for Thought...

Throughout this issue, we include quotes from a film produced by the San Juan Mountains Association in collaboration with the Anasazi Heritage Center, Crow Canyon Archaeological Center, Hopi Tribe, Acoma Pueblo, Santa Clara Pueblo, and others. Although the title of the film—*Visit with Respect*—is a maxim for anyone who wishes to explore the wonders of Greater Cedar Mesa, it is through the voices of present-day Pueblo people expressing deep reverence for their ancestral places that we come to a more nuanced understanding of what, and why, we respect. *To view the film in its entirety, visit the video section at crowcanyon.org, or find a link at archaeologysouthwest.org/asw28-3-4.*

Navajos and Utes also have connections to southeastern Utah, and we share some thoughts from a recent editorial by a Navajo leader and an older interview with a Ute elder.

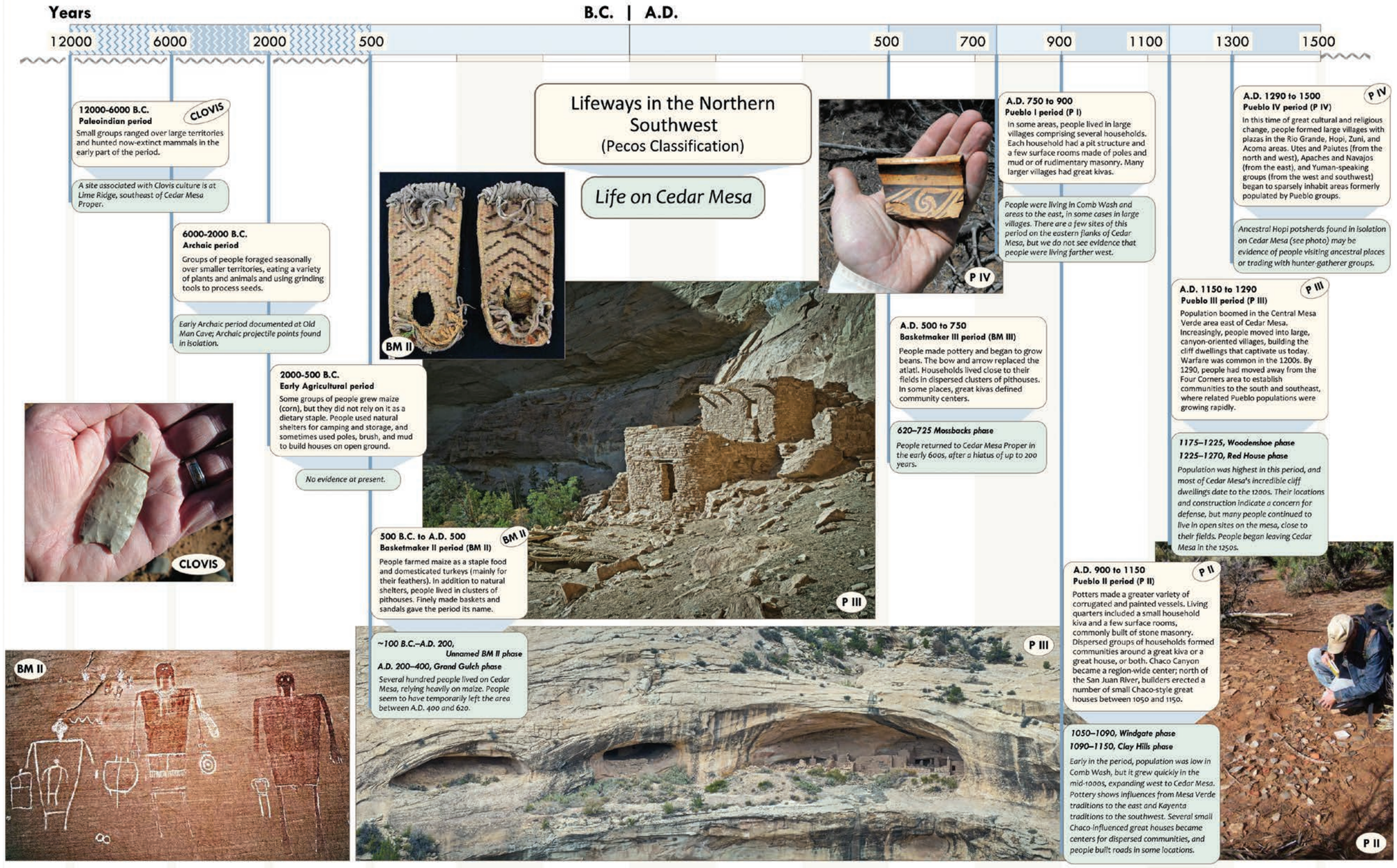
Change through Time in the Northern Southwest

Richard Wetherill's identification of the Basketmakers in the Cedar Mesa region helped the fledgling discipline of Southwestern archaeology to flourish. In 1927, after subsequent work focused elsewhere in the northern Southwest yielded additional evidence of change through time, archaeologists devised the Pecos Classification: Basketmaker I–III and Pueblo I–V (and see *Archaeology Southwest Magazine* 27:3).

Today, we use the term "Archaic" rather than "Basketmaker I" to describe lifeways in the four millennia before the adoption of agriculture, but the other names are still used as general labels for archaeological periods in the northern Southwest. The Basketmaker/Pueblo distinction is a terminological relic—we now know that the whole sequence reflects change through time in the cultural tradition formerly called "Anasazi" and now generally known as "Ancestral Pueblo."

Ancestral Utes, Paiutes, and Navajos began to inhabit Greater Cedar Mesa at various times after Pueblo farmers withdrew, though not as densely as the latter. Spaniards and other Europeans began colonizing the northern Southwest after 1600, and Euro-Americans begin settling in the mid-1800s. Today, more than 90 percent of the Greater Cedar Mesa area north of the San Juan River is managed by the Bureau of Land Management, with smaller parcels being the responsibility of the State of Utah, the Navajo Nation, and the Ute Mountain Ute tribe.

— William D. Lipe



To read more about change through time on Cedar Mesa, as revealed by the work of the Cedar Mesa Project and others, see pages 17–19 and 24–30. This chronology is adapted from one Lipe wrote for Cliff Dwellers of Cedar Mesa *(Canyonlands Natural History Association, 2013), coauthored with Donald J. Rommes (see pages 45–46). Rock art and cliff dwelling photos © Donald J. Rommes. For additional information and credits, visit archaeologysouthwest.org/asw28-3-4.*

GRAPHIC: CATHERINE GILMAN

A Natural History of Cedar Mesa

STEWART AITCHISON
NATURALIST

Cedar Mesa's name derives from the dense stands of cedars—junipers and pinyon pine, to be botanically correct—that cover its highest elevations (about 5,500 to 7,000 feet). Some ten to twelve thousand years ago, at the end of the last ice age, a forest of Douglas fir covered the mesa, and the pinyon pine and juniper woodland was confined to lower elevations. Large mammals such as mammoths, camelids, giant ground sloths, shrub-oxen, and short-faced bears still roamed the area. Teratorn vultures soared overhead, their 16-foot wingspan dwarfing all other birds.

As aridity increased, plants requiring moister and cooler conditions perished, though their descendants survived at higher elevations or in a few shady, north-facing locations. As plant communities changed, most of the large mammals went extinct, perhaps helped along by Paleoindian hunters. Without abundant carrion, the teratorns also disappeared.

By around 4,000 years ago, vegetation communities had probably evolved to resemble those encountered by Cedar Mesa's earliest full-time farmers in late B.C. times. These people affected local ecology by clearing land for crops and intensively using other resources. Once Ancestral Pueblo farmers left Cedar Mesa

Aerial view of the canyon of South Fork Fish Creek in Cedar Mesa, looking northwest in afternoon light, with Bears Ears on the center horizon. Greater Cedar Mesa's riparian habitats have rebounded in the four decades since livestock grazing was banned in major canyons. PHOTO: © ADRIEL HEISEY

in the 1200s, woodland slowly regenerated. Issue editor Bill Lipe took samples from 100 trees that showed a median age of about 200 years, with some trees exceeding 450 years. The pinyon-juniper woodland we see today is thus approaching "old growth" status.

Since the late 1800s, large numbers of cattle, sheep, and horses have grazed on Cedar Mesa. Woody plants and less-palatable plants became more prevalent as herds consumed grasses and tasty forbs (herbs other than grasses). Today, stands of big sagebrush, four-wing saltbush, shadscale, broom snakeweed, rabbitbrush, winterfat, prickly pear cactus, and a variety of annuals and grasses appear in flats or clearings. Obnoxious exotic weeds, including Russian thistle (tumbleweed), summer cypress (kochia), halogeton, and cheat grass, have invaded the southwestern portion of the mesa, where vegetative cover is sparser and there are large areas of barren slickrock.

Left: *A* tinaja *(pothole that collects rainwater) along Cottonwood Wash.* PHOTO: © ADRIEL HEISEY ***Above:*** Tinajas *harbor many unusual forms of specialized life, including pothole beetles, nematode worms, pothole mosquitoes, and at least three species of freshwater shrimp. Their entire life cycle must be completed before the pool evaporates. The eggs of the shrimp can remain viable for up to 25 dry years, even if subjected to temperatures exceeding 100 degrees Fahrenheit.* ***Upper left:*** *Freshwater tadpole shrimp.* PHOTOS: STEWART AITCHISON

Above: *Cedar Mesa wildlife includes mule deer (pictured here), mountain lion, bobcat, black bear, gray fox, coyote, rabbits and rodents, a variety of reptiles and amphibians, a host of birds, and scores of invertebrates. Bighorn sheep were present until the twentieth century. No species occurs in great numbers, however, because of the generally arid conditions. Only a few of the vertebrates are closely tied to the woodlands; for example, pinyon jay, gray flycatcher, gray vireo, black-throated gray warbler, pinyon mouse, bushy-tailed woodrat, and plateau striped whiptail (*Aspidoscelis velox*) are common residents.* PHOTO: STEWART AITCHISON

Slight shifts in rainfall patterns increased erosion rates, leading to extensive arroyo cutting. Human impacts continue today—directly, through off-road vehicle use, woodcutting, and oil exploration, and indirectly, through climate change. Some scientists predict that, by 2100, drought, wildfires, and insect infestations will ravage Southwestern woodlands.

Two of the more ecologically sensitive and diverse areas of Cedar Mesa are riparian canyon bottoms and hanging gardens. For more than thirty-five years, livestock

Above: *One endangered habitat is the microbiotic soil crust, a complex community of cyanobacteria, green algae, lichens, fungi, and mosses that form a living cover on much of Cedar Mesa's thin topsoil. These crusts help stabilize the soil, increase water absorption, aid in nutrient availability for vascular plants, and enhance seedling establishment. Once disturbed by livestock, hikers, bikers, or vehicles, crusts take decades to recover. This image shows a seedling in microbiotic crust at Canyonlands National Park, north of Cedar Mesa.* PHOTO: NEAL HERBERT, COURTESY OF THE NATIONAL PARK SERVICE

Weathered, jointed sandstone and patches of microbiotic soil crust in morning light. PHOTO: © ADRIEL HEISEY

grazing has been banned in the major canyons, and riparian habitats have rebounded. Green bands of Fremont cottonwood and coyote willow mark where water is on or close to the surface. Rare seeps in canyon walls bring fragile hanging gardens that often harbor endemic plants, such as the cave (Easter) primrose and alcove columbine.

Clearly, Cedar Mesa's ecology remains dynamic. It is up to us to be good stewards of this special place.

Aerial view of the southern edge of Cedar Mesa at the mouth of Johns Canyon in morning light. The San Juan River is in the foreground in this view to the north-northeast. Cedar Mesa's geology is typical of the greater Colorado Plateau: relatively horizontal layers of sedimentary rock. The top of the mesa is primarily composed of buff-colored, wind-deposited Permian Cedar Mesa Sandstone, which erodes into cliffs and ledges. Sitting atop the Cedar Mesa Sandstone are a few remnants of thin-bedded, dark red sandstone and mudstone of the Permian Organ Rock Formation. A blanket of Mesa Verde loess deposited in the Pleistocene covers the more level portions of the mesa top; this was Ancestral Pueblo farmers' primary soil. Underlying the Cedar Mesa Sandstone is the deep reddish, river-deposited Permian Lower Cutler Formation, formerly known as the Halgaito Formation. This mix of sandstone, siltstone, and shale usually erodes into long slopes. Under the Lower Cutler are the thick Pennsylvanian limestones, mudstones, and siltstones of the Honaker Trail and Paradox Formations, which are exposed to dramatic effect in the San Juan River Gorge just south of Cedar Mesa. PHOTO: © ADRIEL HEISEY

Food for Thought...

"This is a song my great-grandma used to sing. It reminds me of our love for the land. And our love for the land is enough to cry that, '*This is our home; this is our mother. This is the cliffs, and the rocks, and the trees and the bushes and the cactuses are what hold us as people and make us stand tall.*'" — Rose Simpson, Santa Clara Pueblo, *Visit with Respect*

Early Archaeological Expeditions in Greater Cedar Mesa

FRED M. BLACKBURN
CONSULTING HISTORIAN

Ancient and historic trails through Greater Cedar Mesa's challenging landscape—and the Native Americans, settlers, miners, trappers, cowboys, and outlaws who traveled them—made it possible for late nineteenth-century explorers to discover and locate archaeological sites in the region.

The first Euro-Americans to see the area's archaeological remains included members of government expeditions in 1859 and 1875, and the Mormon pioneers of the 1879–1880 San Juan Mission (pages 43–44). These settlers followed traces of a Chaco-era road system (circa A.D. 1050–1150) across Cedar Mesa as they made their way to establish Bluff, Utah (see map on pages 4–5).

Aerial view of Grand Gulch in evening light, with Bears Ears and the Abajo Mountains on the horizon. Ancient and historic trails provided access through this formidable landscape. PHOTO: © ADRIEL HEISEY

Their route, now known as the Hole-in-the-Rock Trail, provided access from established western Utah settlements to Cedar Mesa, Grand Gulch, and the canyons of the Colorado River for several years thereafter.

In the early 1880s, cattle companies from eastern Colorado and the Texas Panhandle arrived in the region. They exploited many existing trails and routes into the deepest reaches of Cedar Mesa. With them came rustlers—cattle thieves—who established difficult and convoluted trail systems that afforded the least chance of detection. The outlaws and rustlers who followed this complex network of trails knew it as the Hoot Owl Trail, now known as the Outlaw Trail. Among its infamous travelers were Butch Cassidy and the Sundance Kid.

A way station along the Hoot Owl Trail in Red Canyon, just west of Cedar Mesa, may have been operated by Emory and Henry Knowles. In 1979, near-centenarian cowboy John Redd recalled to me that these two suspicious characters had a horse ranch there. Emory left his inscription within Grand Gulch in 1894, during a reported artifact-collecting expedition.

I propose that such men who knew the backcountry recounted their discoveries of the ancient "Aztecs" of this region—as Ancestral Pueblo culture was mistakenly conceived at the time—and their reports reached the ears of men such as Charles McLoyd. A mining engineer from Colorado, McLoyd was like many of the time who took advantage of any economic opportunity that came their way. In 1888, a chance meeting with Richard Wetherill and Charlie Mason after their initial exploration of Cliff Palace led McLoyd to excavate there (1888–1889).

He soon expanded westward toward Utah's Grand Gulch Plateau. Accompanied by Charles Cary Graham, McLoyd followed the Hole-in-the-Rock Trail from Bluff City to Cedar Mesa in search of "Aztec" artifacts, and he tried to find a "Secrete Trail Across Grand Gulch" that he had learned about from an unknown party. McLoyd and Graham followed the canyon rims until they found and developed a precarious route into Graham (now Bullet) Canyon. Graham documented this 1890 expedition in a diary. It provided a chronology of excavation and a record of artifacts recovered during the expedition that proved invaluable

to the research of the Wetherill-Grand Gulch Project (1986–1990) and the reverse archaeology process (page 14).

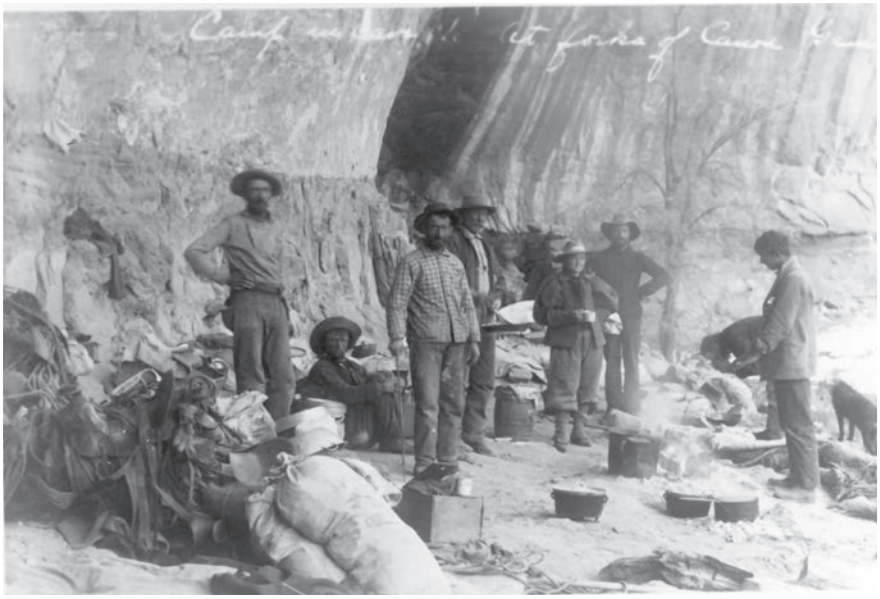
McLoyd led several more expeditions between 1891 and 1894. Explorations beyond Grand Gulch included the Colorado River, Lake Canyon, White Canyon, and Cedar Mesa's westernmost canyons. After a winter 1891 expedition, he undertook the Green Expedition in June, named for the Reverend C. H. Green of Durango, Colorado, who purchased the resulting collection (pages 15–17). Although McLoyd found evidence of the culture we now call Basketmaker, he failed to recognize its relationship to Ancestral Pueblo culture. Instead, he concluded that it was unique.

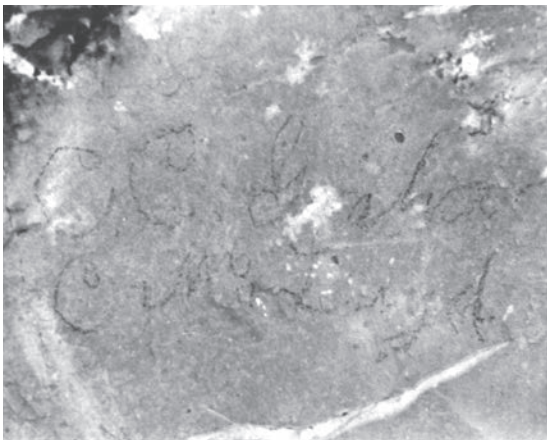
John Wetherill, Richard's brother, had excavated with McLoyd at Mesa Verde. Upon viewing collections from the Green Expedition, John became intrigued by the presence of a "natural" human skull (not deformed by cradleboarding). While McLoyd was away on the Green Expedition, John had been learning excavation and interpretive techniques from visiting Swedish scientist Gustaf Nordenskiöld (see *Archaeology Southwest Magazine* 26:1). In particular, Nordenskiöld showed the Wetherills that, unless disturbed, earlier remains would lie beneath later ones. John accompanied McLoyd on his next expedition to Grand Gulch in 1892, reporting to Richard on the potential for excavation.

Richard then organized the Hyde Exploring Expedition (winter 1893–1894), sponsored by brothers Fred and Benjamin Talbot Babbitt Hyde, who planned to donate any collections to the American Museum of Natural History (AMNH) in New York City. It was on this expedition that the Wetherills realized that Basketmaker culture predated and was related to Ancestral Pueblo, thanks to the rudimentary understanding of stratigraphy gained from Nordenskiöld. Richard and his brothers combined information found in the stratigraphy, skull and artifact characteristics, and burial methods to distinguish the Basketmaker pattern as ancestral to the Pueblo-era cliff dwellers.

Wetherill's 1893–1894 expedition had pioneered a route out of Wetherill Canyon (Kane Gulch) that Richard used again on his return to Grand Gulch and Cottonwood Wash during the winter of 1896–1897. This was the

Robert Allan excavating in Turkey Pen Cave, Grand Gulch, Utah, during the Green Expedition (1891). COURTESY OF THE FIELD MUSEUM, NEG. NO. 63228





Above: *The Whitmore Exploring Expedition's Camp 4 in Grand Gulch, 1897. From left to right: Orian Buck, James Ethridge, George Hairgrove, Levi Carson, Marietta Wetherill, Teddy Whitmore, Charlie Mason (bent over), and Hal Heaton. Marietta and Richard had married the year before, and she joined the expedition to take a second set of notes.* COURTESY OF THE AMERICAN MUSEUM OF NATURAL HISTORY LIBRARY, IMAGE NO. 338269 ***Left:*** *C. C. Graham and C. McLoyd inscribed their names at this and other sites in Grand Gulch.* PHOTO: FRED M. BLACKBURN

Whitmore-Bowles Expedition (also known as the Whitmore Exploring Expedition), again organized to benefit the AMNH. Unexpectedly, overgrazing since 1894 meant that there was no forage for riding and pack animals, and it was extremely cold. These hardships put an end to such expeditions to the area on behalf of AMNH until 1920, when archaeologist and curator Nels Nelson came to Grand Gulch to learn more about collections in his care (page 3). The AMNH remains responsible for curating artifacts, photographs, and records of the Hyde and Whitmore-Bowles Expeditions (see archaeologysouthwest.org/asw28-3-4 for Webster's linking of expeditions and repositories).

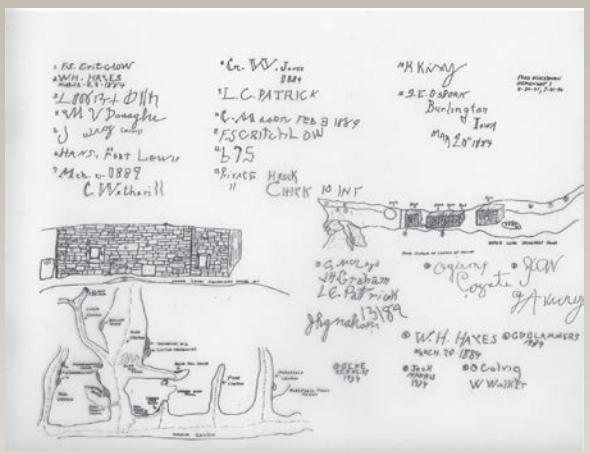
Although at the time some accused the Wetherills of inventing Basketmaker in order to increase the prices of their artifacts, the brothers ultimately were vindicated—sadly, a few years after Richard's 1910 death. The discoveries McLoyd and the Wetherills had made captivated archaeologists, many of whom hired John Wetherill as their guide to Cedar Mesa and the Four Corners area: T. Mitchell Prudden (1906), Alfred Vincent Kidder (1914), Nels C. Nelson (1920), Charles Bernheimer (1922), and Neil Judd (1929), to name a few. Kidder and Samuel Guernsey's work in northeastern Arizona established that Basketmaker was real, and Kidder acknowledged Richard's discovery in print.

Reverse Archaeology

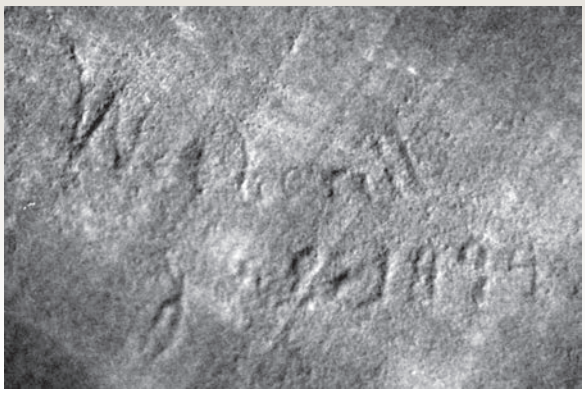
Simply stated, reverse archaeology is *the linking of items in museum collections with their original site locations.* As with the Wetherills' naming of the Basketmakers, the concept stirred controversy at first, but has since gained acceptance. I coined the term during the Wetherill-Grand Gulch Project (1986–1990), a volunteer collaboration among talented amateurs and professional archaeologists.

We recognized that inscriptions at rockshelter and cliff-dwelling sites constitute a primary historic document. Correlating dates, names, or messages in inscriptions with journals, catalogs, letters, biographies, or combinations of these presents an accurate method of determining where artifacts in museum collections have come from—at least to a site, and sometimes to the exact original provenience within the site.

Our research project culminated in the 1990 Basketmaker Symposium, held in Blanding, Utah. The Utah Bureau of Land Management published the proceedings. Since then, the reverse archaeology documentation technique has been used on several other projects. I am currently directing research documentation of historic inscriptions at sites in collaboration with Jefferson County Open School (based in Lakewood, Colorado), the Navajo Nation Historic Preservation Office, and the National Park Service. Continued research contributes to an understanding of historic expeditions within Mesa Verde National Park, Prayer Rock District, Inscription House, Long House Valley, and the canyons of northeastern Arizona.



An example of reverse archaeology documentation. This comes from a site called Hemenway House in Mancos Canyon, Colorado. I have recorded where each inscription is at the site and indicated where the site is in relation to other sites, trails, and features nearby. IMAGE: COURTESY OF FRED M. BLACKBURN



Wetherill 1894 inscription. Vandals obliterated the inscription some time after I took this photo. PHOTO: FRED M. BLACKBURN

Today, the methodology we developed for documenting inscriptions is standardized within the National Park Service documentation manual.

— Fred M. Blackburn

To learn more, read Cowboys & Cave Dwellers: Basketmaker Archaeology in Utah's Grand Gulch *by Fred M. Blackburn and Ray A. Williamson (SAR Press, 1997).*

Documenting Early Collections of Perishable Artifacts from Greater Cedar Mesa

LAURIE D. WEBSTER
UNIVERSITY OF ARIZONA

As a perishables specialist working in the Southwest, I was long aware that large quantities of well-preserved perishable artifacts—textiles, baskets, hides, feathers, wooden implements, and other vegetal materials—had been recovered from dry caves in Grand Gulch and other drainages in southeastern Utah during the 1890s by collectors named Wetherill, McLoyd, Graham, Lang, and Lyman. I also knew that these collectors had sold most of those collections to private individuals who then donated or sold them to museums far from the Southwest.

What I *did not* know, because so few of these artifacts had been published, was what was in these collections or what they might tell us about the early inhabitants of this region. By the mid- to late twentieth century, most of these objects had been removed from public exhibition and retired to museum basements, where they rested in relative obscurity, virtually unknown to today's archaeologists, the public, and descendant native communities.

Four years ago, in an effort to understand these collections and make them more widely known, I initiated a project to photo-document the perishable artifacts in these collections. This work was made possible by the extensive research of the Wetherill-Grand Gulch Project (page 14), which documented the histories of the early expeditions and the trajectories and locations of their collections.

I began my project with the Green and Ryerson-Lang collections at the Field Museum. With the assistance of Northern Arizona University graduate students Erin Gearty and Rechanda Lee and Flagstaff wildlife biologist Chuck LaRue, and with financial support from the Canyonlands Natural History Association and the Field Museum, I surveyed approximately 800 perishable artifacts and generated 3,000 digital photographs. I am now in the process of surveying collections at the National Museum of the American Indian, the Museum of Peoples and Cultures at Brigham Young University, and the Natural History Museum of Utah at the University of Utah.

To give you an appreciation of the scope of these perishable collections, I will summarize my work with the Green and Ryerson-Lang collections. Charles McLoyd and Charles Cary Graham amassed the Green collection during 1890–1891 in Grand Gulch, Utah (pages 12–14).

Top: *Hafted bone drill in wooden handle with original pitch, circa A.D. 1–1300, Grand Gulch. Green collection. Catalog number 121.21715.*
Bottom: *Elliptical coiled basket, circa A.D. 1100–1250, Battle Cave. This basket contained a variety of objects, including balls of colored yucca yarn, bone scrapers, pigment, and two containers of rock salt. Lang collection. Catalog number 1468.165274.* PHOTOS: LAURIE D. WEBSTER, COURTESY OF THE FIELD MUSEUM

Pair of sandals decorated with buckskin fringe, human hair, and red pigment, Butler Canyon, median AMS date 112 cal. B.C. One of the three pairs of infants' sandals found in a small yucca twined basket. A small bird pelt fragment covers the hole in the heel of one sandal. Lang collection. Catalog number 1468.164802. PHOTO: LAURIE D. WEBSTER, COURTESY OF THE FIELD MUSEUM

The Reverend C. H. Green purchased it for $3,000 and took it to Chicago for exhibition at the World's Columbian Exposition of 1893. Green later published a sales catalog of the collection with limited provenience information. After the fair, Green sold the collection to the newly formed Columbian Museum—now the Field Museum of Natural History—for the disappointing sum of $2,000. The Green collection is particularly strong in artifacts from the late Pueblo II and Pueblo III periods (A.D. 1050–1290; see pages 6–7).

A former member of the Hyde Expedition (page 13) and short-term resident of Bluff, Utah, Charles Lang subsequently made the Ryerson-Lang collection with two companions during the winter of 1894–1895. Items came from Grand Gulch and from Cottonwood, Hammond, Butler, and Allen Canyons. Lang, too, compiled a sales catalog of the collection, which provides relatively good provenience information for its time. Martin Ryerson purchased the collection and loaned it to the Walker Museum at the University of Chicago until its transfer to the Field Museum in 1923. Its major strength is its extensive inventory of well-preserved Basketmaker II perishable material culture.

My survey of both collections identified approximately 300 textiles, 250 wooden artifacts, 135 other vegetal articles, 65 baskets and mats, 30 hides, and 20 other miscellaneous objects. Sandals constitute nearly two-thirds of the textiles, but this category also includes looped, netted, and twined bags, braided and woven tumplines (carrying straps worn across the front of the head, behind the hairline), cradle bands, woven cotton cloth, looped human-hair leggings and socks, women's aprons, twined feather and fur blankets, and a variety of cordage, ropes, and yarns. In one Basketmaker II (A.D. 100) twined blanket, LaRue identified the pelts of more than nine different birds!

Pristine painted yucca tumpband, Battle Cave. Part of a cache wrapped in a large buckskin. The tie from the bundle yielded a median radiocarbon date of A.D. 709. Lang collection. Catalog number 1468.165170. PHOTO: LAURIE D. WEBSTER, COURTESY OF THE FIELD MUSEUM

The collections contain a wide array of wooden artifacts, including: atlatls; dart foreshafts and mainshafts; wooden arrow points and arrows; hafted stone knives and an awl; a complete bow drill; ceremonial sticks; a wooden pipe bowl; a pair of crutches; a cotton beater and weaving batten; a wooden sandal form; several fire hearthboards and fire spindles; men's hair ornaments; three ladders; and nearly forty agricultural implements. The latter could form the basis for an excellent study of farming technologies in the centuries before Europeans arrived in the Southwest.

The baskets—some in near-perfect condition—include coiled, plaited, and twined forms, and the mats include twined-rush and sewn-willow varieties. Numerous raw materials for textile and basketry production are present. Nearly half of the hide artifacts are small bags, some still containing their original contents, including seeds and pigments. Numerous animal pelts and tanned hides are among the collections—one worked into a moccasin, another a sandal made from two mountain lion feet.

The Lang collection also contains several notable artifact caches, including a Basketmaker II twined yucca basket that contained three pairs of infant sandals (100 B.C.); a Basketmaker III buckskin that held a small hide sack, seed beads, and a pristine painted yucca tumpband (A.D. 700); and a Pueblo III elliptical basket (A.D. 1100–1250). The latter contained several bone fleshers, pigments, a bag of rock salt, and several bundles of beautifully dyed and processed yucca yarn, among other items.

The sixteen Accelerator Mass Spectrometry (AMS) radiocarbon dates derived from the Green and Ryerson-Lang collections support an intensive use of dry alcoves on Cedar Mesa and in the surrounding canyons during the Basketmaker II period, especially during the last century B.C. and the first two centuries A.D. In the near future, the data and photographs generated by these surveys will be available for research at a perishables archive to be established at the Edge of the Cedars State Park in Blanding, Utah, and through the online database tDAR (the Digital Archaeological Record), subject to consultation. I hope that archaeologists and other researchers, including tribal members, will make extensive use of this information and bring these extraordinary collections out of the forgotten darkness of museum basements, into the light.

To review Webster's table linking expeditions to current collections repositories, visit archaeologysouthwest.org/asw28-3-4.

Culture History of Cedar Mesa Before 1300: Findings of the Cedar Mesa Project and Its Successors

WILLIAM D. LIPE
WASHINGTON STATE UNIVERSITY

From 1971 to 1975, R. G. Matson and I led the Cedar Mesa Project (CMP), which undertook sampling-based surveys and limited excavations in a 309-square-mile (800 km^2) study area in the higher part of Cedar Mesa Proper (see map on page 4). We described change through time in Ancestral Pueblo culture there and compared that with what was known about neighboring areas (see time line on pages 6–7). The vast majority of the sites on Cedar Mesa date to the Basketmaker II through Pueblo III eras (100 B.C.–A.D. 1270 in this area).

We found that there were periods when very few or no people were living on Cedar Mesa. This was not only due to climatic variations that affected farming, but also to the geographical expansion or contraction of populations in adjacent areas. Winston Hurst's recent surveys in Comb Wash indicate more continuous settlement there than on Cedar Mesa Proper, though fluctuations did occur.

Paleoindian and Archaic Peoples (Before 2000 B.C.)

Today, we are learning about Paleoindian use of Greater Cedar Mesa through work at the Lime Ridge Clovis site (pages 23–24). Our CMP surveys on Cedar Mesa did not locate any Paleoindian sites, but we did find Archaic points in isolation and at Pueblo period sites, where residents may have used these ancient "collector's items" in rituals. On the eastern edge of Cedar Mesa, Phil Geib and Dale Davidson's excavations at Old Man Cave have revealed the presence of people from about 7000 to 5000 B.C., in the Early Archaic period.

Basketmaker Lifeways

Greater Cedar Mesa was a regional "hot spot" for Basketmaker (BM) II settlement, comparable to the Black Mesa/Marsh Pass and Canyon de Chelly areas of northern Arizona,

and to the area around Durango, Colorado. In this issue, R. G. Matson (pages 24–30) describes how the CMP and other research projects in the area have advanced understanding of life during BM II, and Laurie Webster (pages 15–17) and Sally Cole (pages 36–39) show outstanding examples of textile and rock art from this period. In our study area, BM II settlement started in late B.C. times, with peak population from A.D. 200 to 400 (the Grand Gulch phase), when we estimate average population was between 440 and 880 people. Settlements of this time (and later periods) were dispersed in a way that is consistent with mesa-top dry farming.

After a several-hundred-year hiatus in settlement, there was an influx of people, probably from areas to the east, around A.D. 600 (BM III). Average population over the next century was an estimated 600 to 1,200 people. The BM III expansion apparently slowed on Cedar Mesa, because sites of this period are rare to nonexistent farther west.

Pueblo-Era Lifeways

In our CMP study area, there are few, if any, sites dating from A.D. 750 to 1060 (Pueblo [P] I and early P II). Significant numbers of people were living in Comb Wash and areas farther east in P I, however. Hurst reports a population decline in Comb Wash in the 900s (early P II), followed by resurgent settlement there and on the eastern flank of Cedar Mesa in the early 1000s.

The late P II and P III reoccupation of the CMP study area dates between about 1060 and 1270 (see time line on pages 6–7), with an estimated average population of 750 to 1,500. The initial late P II phase (Windgate) has pottery linking it to the Central Mesa Verde area to the east (see map on pages 4–5). Pottery of the Kayenta tradition becomes predominant at the end of the 1000s and in the early 1100s, perhaps indicating an influx of people from the region southwest of Cedar Mesa (see *Archaeology Southwest Magazine* 27:3).

Aerial view of a promontory on Cedar Mesa, looking north in evening light. R. G. Matson and Bill Lipe found that the presence of dense pinyon-juniper woodland was the best predictor of where ancient habitation sites were most common in the Basketmaker II through Pueblo III eras (100 B.C.–A.D. 1270 in this area). On the near horizon are the Bears Ears and Elk Ridge; the Abajo Mountains are in the far distance to the right. PHOTO: © ADRIEL HEISEY

North of the San Juan River, the strongest influence from Chacoan centers in New Mexico occurred in late P II times. In this issue, Jonathan Till and Winston Hurst describe two "Chaco-esque" great houses on Cedar Mesa Proper (pages 31–34). The builders began these late in the Windgate phase, probably about A.D. 1080. Although small by regional standards, these formal two-story buildings would have contrasted ostentatiously with the much simpler habitations of the time. Local leaders probably sought to enhance their status by advertising an association with Chaco—perhaps gained through religious pilgrimages.

There was a population decline and a probable brief hiatus in the CMP study area in the mid-1100s, coincident with a severe regional drought. Population rebounded quickly in the late 1100s (early P III), and pottery again indicates strong ties to the Central Mesa Verde area. One of the great houses (pages 31–34) continued as a community center into late P III. In the 1200s, most people continued to farm and live on the mesa, but some built small cliff dwellings in Grand Gulch and other canyons. Most of these appear defensive, and undoubtedly represent one reaction to the small-scale warfare affecting the entire Northern San Juan region at this time.

The Moon House cliff dwelling complex in morning light. In the 1260s, this place became a kind of group storage depot, as people remodeled earlier structures and built new ones. The latest tree-ring date from Cedar Mesa Proper (1268) comes from the Moon House complex. The site is open to the public; however, visitors must obtain a permit from the Bureau of Land Management office in Monticello, or at the visitor facility on Cedar Mesa. PHOTO: © ADRIEL HEISEY

Emigration

Tree-ring dates indicate that construction on Cedar Mesa declined in the 1250s and essentially stopped in the 1260s, except at the Moon House complex (pictured above), where the latest date is 1268. Some who left Cedar Mesa probably sought greater security by joining the large villages that were forming in the 1250s and 1260s in and around canyon heads in the Central Mesa Verde area. Other emigrants may have moved south to Hopi or other areas where Pueblo people were living (see *Archaeology Southwest Magazine* 27:2).

The Great Drought of 1276–1299 occurred too late to explain the depopulation of Cedar Mesa. In fact, people were also drifting away from the Central Mesa Verde region before 1276, even as large yet short-lived villages were forming in that area. Multiple factors probably account for the massive migrations out of the Northern San Juan region, which were completed by the early 1280s. These include the pressures of warfare, experiments with new ways of organizing large villages, and, in some areas, crop failures. Perhaps more important were the attractions of growing Pueblo communities to the south and southeast, where people were developing new forms of community organization.

Food for Thought...

"Where did the people go who used to live here? Well, for us Pueblo people, we are them. That is as certain as I am sitting here: we are them. We have not gone away." — Tessie Naranjo, Santa Clara Pueblo, *Visit with Respect*

Canyons of Danger

Walking, scrambling, and inching through the canyons of Cedar Mesa stimulates my imagination. When I see people's rooms and dwellings in precarious settings such as this, it always strikes me: fear of attacks is the only reason to live this way.

I imagine myself as such an attacker when I walk along this narrow peninsula toward the group of rooms at its end. To the left or right is a fall to the death, and the broad, white causeway leading to the rooms is bare of places to hide. I'm fully exposed to any guards posted ahead, and it's a long way forward. Where the elevation rises a bit, the defenders have built a wall that puts me at their mercy.

I have received the message of this place—today and in my imagination.

—William H. Doelle

Sunrise over two deep canyons that come together to create an isthmus with a rock island at its end. Note the wall remains in the middle foreground.
PHOTO: © ADRIEL HEISEY

On the promontory at the end of the peninsula is a complex of masonry buildings, some of which are visible in this view. They almost certainly date to the 1200s, as do nearly all the many defensive structures and sites on Cedar Mesa. This was a time when Pueblo communities across the Four Corners area were raiding one another—archaeological research has yielded no evidence that Navajo or Paiute bands were involved. Despite the troubled times, many families still lived in small, unfortified homesteads on the mesa, as in earlier periods.

Most of the structures shown here appear to be large storage granaries for maize that must have been grown on the mesa top at least a half mile away. This was probably a community storage depot for more families than actually lived at the site. Maize provided more than 70 percent of the food for Cedar Mesa people, so defending these vital stores was critical. The site may also have served as a redoubt for mesa-dwellers when raids threatened.

—William D. Lipe

Aerial view of the promontory and structures at sunrise. PHOTO: © ADRIEL HEISEY

Masonry structures at sunset. As visitation to this place increases, it seems prudent for the BLM to manage access through special permits. PHOTO: © DONALD J. ROMMES

It is easy to romanticize this place from this photograph. The warm light, washing over the façades of sheltered and well-constructed masonry structures, suggests a place of serenity and security, but the journey to the site—and the location itself—creates an entirely different impression.

The route requires a long walk across a juniper- and pinyon-dotted mesa top that terminates at a steep slope of naked sandstone. A harrowing descent follows, leading to a broad ledge that quickly narrows to form a stony causeway. This ends at a promontory isolated by deep canyons on three sides. It would have taken an incredible effort not only to build here, but also to make perilous trips into the canyons for water, and to carry maize to fill these granaries.

It is impossible to make this journey without sensing that these people lived with conflict and fear. Reason enough to build so defensively, reason enough to move away—as so many did not long after the construction of this site.

—Donald J. Rommes

The Lime Ridge Clovis Site

WILLIAM E. DAVIS AND JONATHAN D. TILL
ABAJO ARCHAEOLOGY

Located just west of Comb Wash, the Lime Ridge site is Utah's best-documented Clovis site. Named for a distinctive type of spear point (pictured below), the Clovis archaeological record dates to about 13,000 years ago. At that time, small mobile bands of people ranged over very large territories across North America, gathering wild foods and hunting large Pleistocene mammals that are now extinct. The Lime Ridge site represents one group's campsite.

The site lies on a high finger-ridge that offers a 360-degree view and overlooks a canyon head. This canyon and others provided corridors for animals to move between the Lime Ridge upland and the riparian ecozone of the San Juan River, making the vista from the site especially appealing to hunters. Although the location's vegetation today consists of low shrubs and sparse grasses, the late Pleistocene environment was more likely subalpine, an attractive environment for Pleistocene mammals such as Shasta ground sloth, mammoth, Harrington's mountain goat, shrub-ox, bison, and possibly giant short-faced bear and camel (pages 8–11).

Abajo Archaeology first investigated the Lime Ridge site in 1985. Since then, monitoring by us and by others has yielded additional information. When we first recorded Lime Ridge, we documented about 300 stone artifacts. Except for a few stone flakes recovered during limited excavations, all artifacts were from the surface, and the surface assemblage did not seem to have been seriously disturbed or mixed with later cultural materials. Significantly, there are many more tools and implements than debitage (debris associated with stone tool manufacturing), suggesting that the location was a special-use site, rather than a longer-term encampment.

Initially, we determined that the materials used to make these tools were of local origin. We also concluded that the assemblage was less specialized than collections reported from sites where people had killed or butchered animals, and that the composition and character of the tools did not indicate butchering. Based on these observations, we suggested that people stayed at the camp very briefly, perhaps using it as a hunting stand.

At the Lime Ridge site, we found projectile point fragments, bifaces, end scrapers, unifacial tools, notched flake tools, and wedges. Several of the Clovis projectile points (left) are made from fine-grained silicified gray sandstone. Use-wear patterns on most of the scrapers are consistent with bone-, antler-, or woodworking. PHOTOS: SITE, JONATHAN D. TILL; CLOVIS POINT, WINSTON B. HURST

Eroded badlands on the eastern flank of Lime Ridge above Comb Wash in evening light. Comb Ridge is below the horizon and the Abajo Mountains are on the left horizon in this view to the northeast. PHOTO: © ADRIEL HEISEY

Upon re-examining the artifacts, Meghann Vance recently found considerable evidence that people made biface tools and true blade tools at Lime Ridge. Like us, she identified numerous informal flake tools that people probably used for cutting, scraping, and graving (incising), with the latter activity possibly related to repairing other tools. Vance concluded that the Lime Ridge assemblage reflects tool replenishment—perhaps a weeklong stop-off after a successful hunt (and subsequent animal processing) in which tools were broken. Intriguingly, Vance also noted that the assemblage comprises an astounding eighteen raw material types. Although most occur throughout southeastern Utah, she also identified Pigeon Blood agate, which may have come from central Utah, and Wonderstone rhyolite, which occurs in northern Nevada and possibly Vernon, Utah.

Other traces of the Clovis era in the Greater Cedar Mesa area include a few isolated finds of Clovis points or point fragments, and some possible Clovis artifacts mixed with later ones in a large surface site. We remain on the lookout!

Online exclusive: Davis and Till's expanded essay on the Lime Ridge Clovis site is available as a PDF at archaeologysouthwest.org/asw28-3-4.

Cedar Mesa Basketmaker II: The Story Continues

R. G. MATSON
UNIVERSITY OF BRITISH COLUMBIA

Some 30 years ago, accumulating evidence on Cedar Mesa supported the view that the Basketmaker II (BM II) archaeological pattern (see time line on pages 6–7) reflected a very different adaptation than that described by conventional archaeological wisdom. From the time of Kidder and Guernsey (page 14) until the late 1970s and mid-1980s, most archaeologists thought that BM II represented an indigenous group in a transitional stage between hunting-gathering and farming—with full dependence on agriculture not developing until A.D. 800–1000.

Reinterpreting Basketmaker II Lifeways

The people living on Cedar Mesa from about 100 B.C. to A.D. 400 were not "modified" hunter-gatherers, but full-time agriculturalists who obtained around 80 percent of their calories and protein from maize. I first demonstrated this in 1986 by reviewing four independent lines of evidence that came out of the Cedar Mesa Project (CMP; see pages 17–19). The settlement patterns of the BM II period are very similar to later, Pueblo

period ones. Diane K. Aasen's analyses of human coprolites (preserved feces) from Turkey Pen Cave, Dana Lepofsky's analysis of a midden (trash deposit) from the same site, and my and Brian Chisholm's analysis of human carbon isotopes from several sites on Cedar Mesa point to heavy dependence on maize. By the early 1990s, Bill Lipe and I were arguing that farming was basic to BM II in the Four Corners area generally, not just on Cedar Mesa.

Researchers have long recognized differences between the "eastern" BM II of the Durango and Navajo Reservoir areas of Colorado and New Mexico, and the "western" variety seen in southeastern Utah and northeastern Arizona. In 1991, I recognized significant similarities between western BM II and the San Pedro Cochise complex of southern Arizona, indicating that BM II probably derived from the San Pedro Cochise. This is consistent with earlier suggestions by Earl Morris and Robert Burgh (1954), Cynthia Irwin-Williams (1967), and Claudia and Michael Berry (1986).

I also noted that the canyon-oriented western BM II—such as Kidder and Guernsey found in northeastern Arizona—was probably based on floodwater farming, and, on Cedar Mesa, was earlier than the mesa-top dry farming of the Grand Gulch phase (A.D. 200–400). I hypothesized that the Lolomai phase BM II (the first two centuries A.D.) on northeastern Arizona's Black Mesa included the transition between the two strategies—floodwater farming and dry farming—at about A.D. 100.

The abundant pithouses of the Grand Gulch phase on Cedar Mesa indicated that these were the standard dwelling of the time. Pithouses (though of somewhat different styles) also occur at about this time elsewhere in the Four Corners area. Although the CMP's sampling scheme ensured that our team found the vast majority of these pithouses as single sites, I showed statistically that they occurred in clusters, similar to the "hamlets" that had been identified in other areas of BM II settlement at this time. In the 1990s, Karen Dohm's fieldwork demonstrated that Grand Gulch phase pithouses did occur in groups, and these were not just statistical abstractions.

The CMP's findings supported the difference between "eastern" and "western" BM II patterns first noted in the 1950s by Morris and Burgh, but this remains controversial. Most of our other findings have since become conventional archaeological wisdom, though often with modifications. The most important—the high use of maize—has been thoroughly confirmed for people of eastern and western BM II traditions, mainly through numerous additional isotope analyses (see archaeologysouthwest.org/28-3-4 for references to these and other studies cited in this article).

The Story Continues

One could well conclude that Cedar Mesa has already contributed more than its share to our understanding of people's lives in BM II, beginning with discoveries by Richard Wetherill. But it hasn't stopped!

TURKEYS

The same BM II midden samples at Turkey Pen Cave that I excavated and Bill transported out of Grand Gulch in 1972 included turkey coprolites (feces). Aasen's analysis of two of these in the early 1980s showed they had large amounts of maize pollen, which led Bill and me to conclude that the turkeys were probably domesticated. In 2010, genetic analysis of other turkey droppings from the same midden showed that our Cedar Mesa BM II specimens were the earliest examples found so far of the Southwestern domesticate (page 30). Clearly, there is much to learn about the early use and keeping of turkeys.

CONFLICT

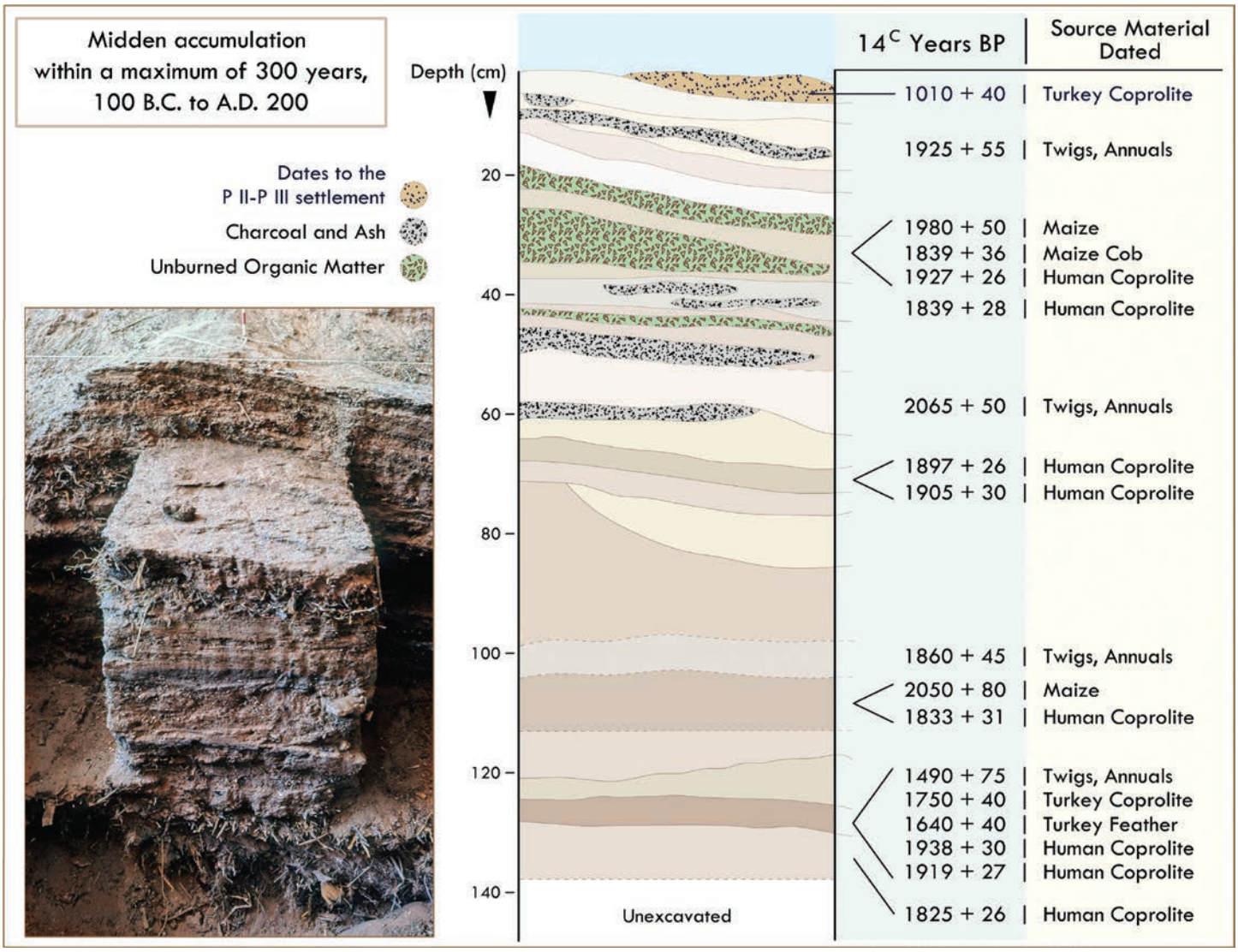
In 1991, I investigated the Rock Island site, which we had discovered in 1974. A defensible pithouse hamlet, it is the only defensive BM II site yet known. This function accords with other evidence for conflict in the immediate region in the BM II period, including Sally Cole's documentation of such themes in rock art, and Christy Turner, Winston Hurst, and Phil Geib's interpretation of human remains found by Wetherill in Cave 7, not far east of Comb Ridge.

MAIZE AND NUTRITION

Ancestral Pueblo (including Basketmaker) people had cross-culturally distinctive patterns of maize use. The extent of their almost total dietary reliance on maize is difficult to find elsewhere. In North and Middle America, people usually boiled maize in water made alkaline by the addition of ash or slaked lime, and then ground it into "masa" dough. In the Pueblo Southwest, however, people usually ground maize dry. Alkaline cooking of maize kernels—so-called nixtamalization—makes more of the essential amino acids lysine and tryptophan available to human nutrition. These two amino acids occur in very low amounts in

(continued on page 28)

The southern edge of Cedar Mesa at Cedar Point. The dramatic pattern of blocks results from natural "joint" factures in the sandstone. In this view to the east, the Valley of the Gods is visible in the middle distance to the right, and part of the Carrizo Mountains can be seen on the far right horizon. PHOTO: © ADRIEL HEISEY



Samples recovered decades ago continue to reveal important information. This shows the stratigraphic profile (right) of a test unit (left, excavation in progress) excavated in the Basketmaker II midden at the Turkey Pen site. I dug this pit in 1972, cleaned up the profile, and then isolated the 50 x 50-centimeter column you see here. Bill Lipe and I bagged up each layer in the column and hauled the samples out of Grand Gulch. The samples contained feathers, maize, plant matter, and dried human and turkey coprolites, among other things. (In fact, the "blob" on the surface of the column in the photo is a coprolite.) Analysis of those samples over the years has yielded eighteen radiocarbon dates, twelve of which were determined more recently by Accelerator Mass Spectrometry (AMS). When calibrated to current calendar years, and with emphasis on the AMS determinations, the dates indicate that all but the top few centimeters of the midden accumulated between about 100 B.C. and A.D. 200. The top of the midden dates to the later Pueblo II–Pueblo III habitation at the site. Specimens from the midden have undergone palynological (pollen), archaeobotanical, isotopic, and genetic analyses, as well. PHOTO: R. G. MATSON, COURTESY OF THE MUSEUM OF ANTHROPOLOGY, WASHINGTON STATE UNIVERSITY. GRAPHIC: CATHERINE GILMAN, USING DATA PROVIDED BY MATSON AND LIPE

(continued from page 25)

maize. Beans, which are also a good source of lysine and tryptophan, are not present until after BM II.

Bill and I have long suggested that people used the limestone found in abundance on Grand Gulch phase sites for stone boiling, thus achieving nixtamalization. Recently, we supervised an experimental project demonstrating that, when heated in an open fire and then dropped into water, Cedar Mesa limestone creates an alkaline cooking environment that can nixtamalize maize. The limestone-boiled maize proved to have more biologically available lysine and tryptophan than untreated maize,

partially explaining the ability of Cedar Mesa's BM II inhabitants to thrive on their high-maize diet without beans.

FLOODWATER FARMING AND DRY FARMING

We are learning more about the lifeways of the region's early farmers. While investigating anomalous sites in the low-elevation western end of the CMP Hardscrabbble drainage unit, I excavated a BM II pithouse that dated before A.D. 200. It was smaller and deeper, and it lacked the distinctive slab-lined entryway (see image below) found in the later pithouses. This earlier style is very similar to some pithouses dating before A.D. 200 south of the San Juan River. The area I investigated was one of few on the mesa top with obvious floodwater farming potential, supporting the idea that floodwater farming occurred prior to mesa-top dry farming. Other non-habitation sites in this low-elevation area also dated before the Grand Gulch phase, but after 100 B.C. These dates and those from the Turkey Pen midden indicate that there was a substantial farming-based population on Cedar Mesa by about 100 B.C. Initially, floodwater farming predominated, and most people were living in the canyons. On Cedar Mesa, the Grand Gulch phase (A.D. 200–400) represents a shift to mesa-top dry farming, with people living in pithouses close to their fields.

IN PROGRESS

The results reported above are relatively complete; what follows are projects in process. Jesse Morin and I have submitted a manuscript that successfully tests Phil Geib's idea that people

Basketmaker II shallow pithouse dating to the Grand Gulch phase, A.D. 200–400, excavated in 1970. Margins and features are outlined in thin white rope. Archaeology student Karen Croom is sitting just north of a shallow central fireplace that has a broken-off slab deflector. Other features include a slab-lined entryway on the south, slab wing-wall dividers, and a large storage pit in the southeastern part of the house floor. The superstructure would have been constructed with poles and branches, covered with a layer of mud, and supported by an interior frame that probably had four posts set into the floor. PHOTO: WILLIAM D. LIPE, COURTESY OF THE MUSEUM OF ANTHROPOLOGY, WASHINGTON STATE UNIVERSITY

of eastern and western BM II traditions made their stone atlatl points differently. Brian Kemp is completing a genetic analysis of Turkey Pen human coprolites. And, while drafting this paper, I received news that twenty corncobs from Turkey Pen have had their genetic content analyzed, providing a basis for new understanding of early Southwestern maize. These are only a few examples of how Cedar Mesa continues to enlighten us about people's lives in the Basketmaker II era.

Ancient Turkeys

One of several surprises from a recent study of archaeological turkey remains was the finding that the earliest examples of a distinctive Southwestern domestic breed are from Cedar Mesa! Kemp obtained DNA evidence from some dried turkey droppings that R. G. Matson had excavated in 1972. Matson recovered these from a Basketmaker II midden (trash deposit) in the Turkey Pen site in Grand Gulch. (Note that the structure that gave the site its name, which may well have been a turkey pen, probably dates to the much later Pueblo II–III periods).

A larger genetics study directed by Camilla Speller (Simon Fraser University), in which we both participated, discovered the Southwestern domestic breed. The project analyzed turkey remains from thirty-eight sites throughout the Southwest dating from about 100 B.C. to A.D. 1800, with the Cedar Mesa examples being the earliest. Prior to this, researchers thought that Ancestral Pueblo farmers were either keeping birds captured from flocks of the local wild Merriam's subspecies, or raising a version of turkeys domesticated in central Mexico and then imported to the Southwest.

Sometimes, significant information can come from unusual traces of the past—in this case, ancient turkey droppings. PHOTO: WILLIAM D. LIPE

Although turkeys became a very important food source in late P II and P III (about 1100–1290), we think that they were initially kept primarily for their feathers, which were used ritually and to make warm blankets. Lipe took this photo of a turkey feather at Turkey Pen in 1979, on a visit to the site shortly after it had been horribly vandalized. The feather was lying on a pile of dirt unearthed by the looters. PHOTO: WILLIAM D. LIPE, COURTESY OF THE MUSEUM OF ANTHROPOLOGY, WASHINGTON STATE UNIVERSITY

Our study clearly ruled out the second hypothesis, but, to our astonishment, Merriam's turkeys constituted only about 15 percent of the sample. Most of the ancient birds belonged to a variety that appears more closely related to subspecies historically found east or southeast of the Ancestral Pueblo world. Genetically, this variety is labeled "a-Hap-1."

The low genetic variation in the a-Hap-1 birds, and the fact that they were never genetically overwhelmed by the local Merriam's variety, indicates their breeding was controlled by humans—the basic definition of domestication. Pollen from the Turkey Pen droppings indicates that people were probably feeding these birds maize, a conclusion also reached in isotopic analyses of bones from other (and later) contexts.

We were not surprised by what we learned through analysis of raw turkey meat samples from the local supermarket. These were genetically identical to the Mexican variety from which Mesoamerican domestic turkeys were derived. This confirmed historical accounts that the Spaniards took Aztec turkeys to Europe, and that these were in turn introduced to North America, where their descendants now grace Thanksgiving tables and Subway foot-long sandwiches.

— Brian M. Kemp and William D. Lipe

Monumental Landscapes on Cedar Mesa

JONATHAN D. TILL, ABAJO ARCHAEOLOGY
WINSTON B. HURST, CONSULTING ARCHAEOLOGIST

An intriguing discovery quietly unfolding in southeastern Utah is the presence of remarkable Puebloan monumental landscapes. These landscapes include cultural features such as great houses, great kivas, roads, and shrines; natural features as large as mesas or as humble as seeps; and orientations to cardinal directions and solar events such as the equinox and solstice. Further, these landscapes continue to resonate with meaning for descendant peoples.

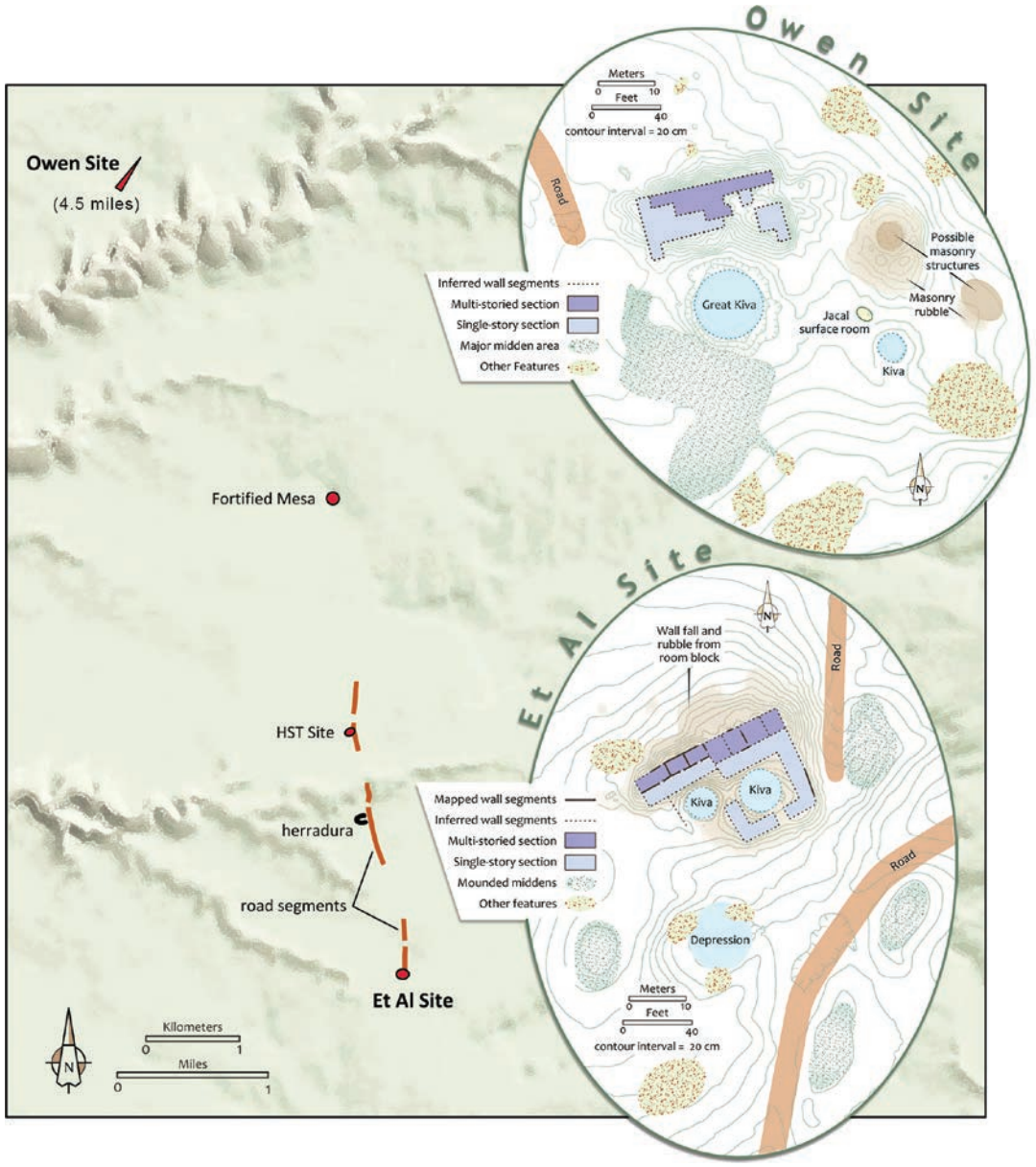
Archaeologists have identified two such landscapes on Cedar Mesa Proper, focused on the Et Al and Owen sites. Set in the pinyon-juniper woodlands of the middle part of Cedar Mesa, Et Al includes a two-story masonry great house that contrasts architecturally with the "ordinary" dwellings nearby. It also has two large kivas, mounded middens or berms, and two distinct road traces. South of the great house is a shallow depression that recent examination via remote sensing indicates was culturally modified, but was not a great kiva—or at least not a finished one. (Remote sensing is a suite of geophysical techniques that help archaeologists locate, map, and interpret buried cultural materials without excavation.) Pottery on the surface of Et Al indicates the presence of people during the late 1000s–early 1100s, and in the late 1100s–early 1200s.

The great doings of Chaco were rippling through the Mesa Verde region at the end of the 1000s. Although Cedar Mesa's Pueblo communities might have been on the northwestern fringe of that social phenomenon, Chacoan concepts apparently impressed themselves into their thinking. Constructed as a center of social gravity for a community of scattered farmsteads, Et Al was steeped in Chacoan and local ideas. These sensibilities are manifest in the features of the Et Al cultural landscape (see graphic on page 32).

Road-sized linear swales converge on the great house from the north and south, and possibly from the east. Like other roads in the Mesa Verde and Chaco regions, these are shallow linear features about 25 to 30 feet wide. They occur as a series of aligned segments, some of which are quite short. Erosion and sediment accumulation often obscure their traces, and they are difficult to follow in dense tree and sagebrush growth.

Et Al's roads are most apparent around the great house itself. The southern road swale appears to terminate or commence (or both) not far to the south, and it sweeps by the great house to head east. The north road articulates

Aerial view of an ancient road across Tank Mesa north of the San Juan River near Bluff, Utah. This view is southeast at sunrise. The roads we discuss in this article are on Cedar Mesa Proper—the mesa top—and they are hard to capture in aerial photos, because of the heavy pinyon-juniper cover. PHOTO: © ADRIEL HEISEY



Graphic showing the monumental landscape we describe in this article. The underlying map shows a portion of the Cedar Mesa cultural landscape, including sites and road segments. The inset maps show the two small Chaco-style great house sites—Owen and Et Al. Each has a number of features in addition to a multistory great house. We identify some of these features here. Those labeled "Other Features" are surface concentrations of artifacts or scatters of sandstone rubble, or both. Most represent areas of trash disposal, but some may be remnants of small, lightly constructed or dismantled structures. No excavations have occurred at the sites on these maps; instead, archaeologists have gathered information through surface observations and, in a few instances, through remote sensing. Remote sensing techniques help us find buried cultural materials.

Recognition and understanding of these monumental landscapes has developed since the late 1980s, based on observations by Owen Severance and by us. Research teams comprising archaeologists from the Bureau of Land Management and the University of Colorado, directed by Catherine M. Cameron and working in the Comb Wash–Comb Ridge area, have greatly refined these concepts. Survey and remote sensing on Cedar Mesa Proper by University of British Columbia–Washington State University researchers R. G. Matson, Bill Lipe, and Natalie Clark have also contributed substantially. GRAPHIC: CATHERINE GILMAN, ADAPTED FROM MATERIALS PROVIDED BY TILL, HURST, MATSON, LIPE, AND CLARK

with a large, apparently constructed berm on the east side of the great house, which, in effect, "sockets" the road into the house mound itself. This is the starting point for the interesting journey the road takes northward across the Cedar Mesa landscape.

At first, the road has a bearing that is nearly true north, a cardinal direction undoubtedly endowed with traditional symbolic meaning. Initially, a pair of buttes dominates the view of the northern horizon. Paired natural features such as these are often associated with roads and other Chacoan features in the Mesa Verde region, particularly in southeastern Utah. Twin landforms might represent the Pueblo/Navajo hero twins—brothers who, at the time of emergence, led humans up from the lower, wet worlds into this, the upper, dry world. Such evocative natural twin features may have helped anchor Et Al's constituents into the physical landscape of Cedar Mesa, and into the deeper cosmological landscape of Pueblo origins.

Traces of Et Al's north road extend discontinuously for approximately 2 miles, touching upon several natural and cultural features en route. Near the head of a small canyon, it passes the probable remnants of a C-shaped shrine, now manifest as a very modest semicircle of rocks. These features, called *herraduras*, are common to roads associated with Chacoan influence, even here on its far-flung periphery. The road's route then crosses an area of seeps and springs in the canyon bottom, perhaps a reminder of the lower, wet world of Pueblo creation stories.

Continuing north, the road skirts the edge of the small HST site, where pottery lying on the surface of the site indicates that

people were there in the late 1000s or early 1100s. The site's main feature is a large depression created, in part, by a berm that breaks the eastern slope; remote sensing shows a small kiva in the depression's center. Farther north, the road's discontinuous swales eventually melt into the eroded ridgelines and drainages of Cedar Mesa's interior upland.

Projecting the alignment, we see that it may have passed close to Fortified Mesa, a set of masonry walls and rooms on a mesita that overlooks Cedar Mesa's interior, prominent buttes to the west, and Navajo Mountain far to the southwest. This panoptic perch may have reinforced people's awareness of the vastness of the dry, upper world, the symbolic end-point of the passage that humans followed. Tree-ring dates and pottery styles indicate that most construction occurred in the early to mid-1200s, probably contemporaneous with the final years people were living at Et Al.

Approximately 6 miles north of Fortified Mesa, the Owen site complex (see facing page) comprises the remains of a compact, two-story great house; a contiguous great kiva; a road trace approaching from the northwest; and several small outlying rubble mounds and midden patches. The Owen site is not on the projected line of the Et Al north road, and no one has yet detected a road trace linking the two great house sites. Hence, Owen appears to be the focal point of a different cultural landscape that archaeologists have not yet fully surveyed.

Of more than a dozen large depressions once identified as possible great kivas west of Comb Ridge, only the one at the

Aerial view of the collapsed great house at Et Al. The dense pinyon-juniper forest here indicates an elevation and soil quality favorable for dry farming. This part of Cedar Mesa Proper had the highest site density in late P II and P III (circa 1050 to 1270). Most people in the Et Al community lived in small single-family homesteads close to their fields. They probably gathered around the great house for special occasions. PHOTO: © ADRIEL HEISEY

A classic Jeddito Black-on-orange pottery sherd we found in the road trace north of Et Al, one of several Jeddito sherds we noted. These are Ancestral Hopi sherds dating to the 1400s, long after Pueblo people had moved away from Cedar Mesa. We think they represent visits to shrines and ancestral sites in the area. PHOTO: JONATHAN D. TILL

Bill Lipe atop the two-story part of the great house mound at Et Al in 2010. A weathered roof beam rests on the masonry rubble. Although small by Southwestern standards, the Et Al great house would have stood out in this community of dispersed habitations, many of which had surface rooms built of poles and mud rather than stone masonry. PHOTO COURTESY OF WILLIAM D. LIPE

Owen site is large and deep enough to defy skepticism. In 2012, remote sensing confirmed its identification as such. The claims to "great"-ness of six other candidates have been refuted by remote sensing, making the remaining claims highly dubious. At present, the Owen site's great kiva appears to be the only bona fide example west of Comb Ridge and north of the San Juan River.

As with other road networks documented in southeastern Utah, some evidence exists for continued Pueblo awareness of these features even after people left the Four Corners in the late 1200s. We have found fragments of Ancestral Hopi pottery along roads or apparent road routes, including the north Et Al road. Additionally, circular and semicircular masonry shrines sometimes occur on the rubble mounds of the region's great houses, indicating Pueblo visits long after the walls had crumbled. The expansive road networks of southeastern Utah, including those we are learning to see on Cedar Mesa, have continued to reach out to Pueblo peoples even across the difficult span of historic times.

Food for Thought...

"Whenever I come to old Pueblo sites it is the beginning of emotions welling up. About people, my people, my ancestors who used to live here. And connections with them. There is no past; there is no present. There isn't a divide there. That's why when we are here, we can greet the people who are here, who have not been here for hundreds and hundreds of years. It's as if they are here right now and we can talk to them."

— Tessie Naranjo, Santa Clara Pueblo, *Visit with Respect*

Standing walls at the Fortified Mesa site on Cedar Mesa. PHOTO: © ADRIEL HEISEY

Pueblo III period cliff dwellings at a site in the eastern portion of Greater Cedar Mesa. PHOTO: © ADRIEL HEISEY

Petroglyphs and Paintings of Greater Cedar Mesa

SALLY J. COLE
NATURAL HISTORY MUSEUM OF UTAH AND FORT LEWIS COLLEGE

Archaic period hunter-gatherers, Ancestral Pueblo people, and historical Utes and Navajos of the Greater Cedar Mesa area signified their presence, social identities, activities, and worldviews in an array of images dating from 3000 B.C. or earlier to the mid-twentieth century. Bold and intricate paintings and petroglyphs appear on cliffs, alcoves, and boulders across the varied and rugged landscape. In these settings, images are often clustered, showing a variety of closely juxtaposed, superimposed, and modified forms from diverse eras. Subject matter, positioning, and patterns of reuse have narrative qualities that point to the significance of the places and images over time.

The archaeological contexts and associated styles, motifs, colors, and patterns of weathering place the imagery in time, whereas recurring ritualistic themes and settings offer insights into related ideas and practices. For cultural descendants, the fragile paintings and petroglyphs contain icons marking pathways and events recounted in traditional histories. For archaeologists, they are evidence of cultural interaction and social affiliations that help explain continuity and change through time on Cedar Mesa and the Colorado Plateau.

All photographs by Sally J. Cole unless otherwise indicated.

Archaic Period–Early Basketmaker II

The earliest identified styles—Glen Canyon Style 5 and Abstract-Geometric tradition—appear to be generally contemporaneous, but they have different patterns of distribution. Style 5 marks river corridors and other waterways, where numerous peoples surely viewed it over time. This style probably influenced development of Basketmaker II and other anthropomorphic (humanlike) expressions. Abstract-Geometric rock art occurs widely in the Southwest, but is relatively rare in the Cedar Mesa area.

Archaic-era Abstract-Geometric paintings on an alcove wall and ceiling.

Anthropomorphic (resembling Glen Canyon Style 5) and Abstract-Geometric petroglyphs on a large tilted boulder shown in the present vertical position and as it would have appeared when horizontal. Note the smaller, upright Basketmaker II–III style human forms at the lower left in the larger image. People made these after the boulder had tilted.

Basketmaker II–Early Basketmaker III

Basketmaker II expressions are the foundation of subsequent Ancestral Hopi and other Pueblo rock art in the region. These examples date circa 400 B.C.–A.D. 550.

Mask-like faces. ***Top:*** *Modified to show nose-line and bared teeth.* ***Bottom:*** *Probably represents a painted, full face-and-hair scalp.*

Dynamic signboards, histories, and stories. ***Top:*** *Large atlatls and darts (far upper left) displayed vertically and horizontally with sets of "twins," geometric motifs, and rows of animals and broad-shouldered figures.* ***Bottom left:*** *A row of "dancers," some with lobed-circle heads and others with hornlike headdresses.* ***Bottom right:*** *Processions of human figures and animal-like tracks juxtaposed with other images. Humans and other forms follow cliff breaks and contours, suggesting travel through the immediate landscape. Over time, many elements have been modified by pecking.*

Broad-shouldered figures with embellished bodies, headdresses, and mask-like faces. ***Above:*** *Distinctive headdresses and ear extensions also appear south of the San Juan River.* ***Right:*** *Red female (center) and red male (right) figures with bodies marked by handprints. Note over-painted handprints to the left of the female's head. These and the white outlines might be of subsequent Pueblo origin.*

PHOTO: © DONALD J. ROMMES

Basketmaker III–Pueblo I

Imagery from this period displays continuities with Basketmaker II, while introducing new forms and ideas comparable to motifs and designs on pottery and textiles. The illustrated examples date from A.D. 500–950.

PHOTO: © JOHN BARTOLOMUCCI

Right: *Bright white paintings of human forms, including a possible female with hair whorls, and textile-like motifs overshadow faded Basketmaker II-style imagery.* ***Far right:*** *Human forms that closely resemble motifs on Basketmaker III and Pueblo I pottery.*

Pueblo II–Pueblo III

New and diverse imagery appears in combination with existing motifs and designs, reflecting population dynamics of the times. The examples I have chosen date from A.D. 950–1300.

More cliff house imagery: Horned snake, handprints, and geometric motifs and designs.

Cliff house imagery. Possible shield or moon motifs, or both. Orb of concentric lines and vertical rows of dots, marked by a handprint.

Top: *Human forms with spread arms and legs are ubiquitous in rock art, and they appear on pottery across the San Juan region.* ***Bottom:*** *Rounded feet and hands resemble feline paw prints; geometric motifs to the right include a T-shape similar to those of architectural doorways.*

Ute and Navajo

Ute and Paiute peoples from the north and west and Navajos from the east came into areas formerly inhabited by Pueblo groups. I have selected examples of Ute and Navajo rock art that date from the 1800s to mid-1900s.

Distinctive subjects and styles of historic Navajo sand paintings and other traditional arts appear in petroglyphs. Here, we see slender horses with small heads, long legs, and hooves resembling hoofprints or horseshoes.

Lightly repatinated Navajo-style figure with pinched waist and legs in profile view is juxtaposed with a possible snake and other forms. These overlie Basketmaker and Pueblo-style images.

Equestrians, game animals, shields, warriors, and spiritual figures, such as war and hunting chiefs and shamans or healers, characterize Ute rock art.

Younger Traces: Other Cedar Mesa Archaeologies

WINSTON B. HURST, CONSULTING ARCHAEOLOGIST
JAMES G. WILLIAN

Every society that has lived in Greater Cedar Mesa has left its marks, the forensic traces we call the archaeological record. These people were as real and intimate a part of the land as its juniper trees, gnats, and collared lizards. In many cases, archaeological remains are the only record we will ever have of their struggles. To those of us who view Cedar Mesa's archaeological record as something more than a playground, artifact mine, or "cash cow," these traces are part of the beauty, mystery, and magic of the place—and we cherish them.

Pueblo ruins are the showstoppers, of course, but there are traces of older and younger cultures, as well. Here, we introduce the younger and most ignored elements of Cedar Mesa's past—the echoes of Ute and Navajo people who inhabited this land after the southward withdrawal of Pueblo communities, and the equally interesting traces of largely undocumented Euro-American ("Anglo") activities.

Numic-speaking "Ute" residents were and are an interesting mix of families and individuals connected variously to other Ute (*Nūch*) bands to the east and to Southern Paiute (*Numa*) bands to the west. Because they were mobile hunter-foragers who scavenged tools from older sites and did not invest in durable structures, their archaeological record is often so faint as to be nearly invisible. It represents an unrecorded chapter in the human history of Cedar Mesa, its importance disproportionate to its visibility. The clearest expression of Ute presence is a rich and largely unstudied body of rock art, concentrated along the San Juan River and appearing elsewhere across the region (a famous panel at Newspaper Rock near Canyonlands National Park is a classic example, and see Cole's essay, pages 36–39).

Nineteenth-century Navajo male hogan, Butler Wash, in 2009. In 2012, campers kicked down this structure and used it for firewood. PHOTO: WINSTON B. HURST

Other traces of Ute lifeways are much more elusive, and we are just learning how to see and interpret them. Archaeologists have not identified many Ute/Paiute sites other than rock art sites, and most of those are tenuously attributed based on the presence of a style of arrow point—Desert Side-notched—that other groups also used, including Navajo and Pueblo (after about 1400). Recent survey in the Comb Ridge area has documented some of the first tipi and wickiup rings (marking where shelters once stood) recognized in the Cedar Mesa region. Archaeologists have also recorded rapidly disappearing traces of cut-limb and brush windbreaks and very rare bits

of Uncompahgre Brown Ware (Ute) pottery from Colorado.

Because Navajo people (*Dine'ii*) were somewhat less mobile than their Numic neighbors, they built more substantial structures, thereby leaving a more recognizable archaeological record. In addition to occasional rock art panels of distinctive style (page 39), evidence of Navajo presence includes residential *hogans* of "male" (conical "forked-stick") and "female" (cribbed-log) construction; "sweat houses"; cut-limb pens or corrals and semi-enclosed camp windbreaks; and, occasionally, fragments of Navajo Utility pottery (everyday wares for cooking and storage).

Disappearing nineteenth-century fence, Comb Wash. Two known historical documents refer to this fence, but do not describe it or its actual location. PHOTO: WINSTON B. HURST

The least-appreciated aspect of Cedar Mesa archaeology comprises traces left by Euro-Americans. Such remains include old wagon roads, trails, camps, corrals, fences, livestock troughs, cabins, mineral claims, surveyors' monuments, mines, drilling sites, and inscriptions. In some cases, these historic traces add detail to information preserved in historic documents; in many cases, they represent activities for which we have little or no written record, as purely archaeological as ancient places.

A few historically known sites have received archaeological attention. The Hole-in-the-Rock wagon road (pages 43–45) is the most famous, yet its archaeological traces are minimally recorded, and road development and recreational off-highway vehicle activity have obliterated the trail in all but a few short sections. Historic inscriptions—particularly those related to early archaeological expeditions—have received attention (pages 12–14), but many others remain undocumented. One of those, "I. W. Grim Co B 6 INF," posed a mystery until a record was found identifying one Private Isaac W. Grimm as a minor member of a little-known U.S. Army mapping party out of Fort Douglas (Salt Lake City) that passed through the neighborhood in 1886. A scratched "NEMO" (Latin for "no one") in Grand Gulch offers a tantalizing clue in the 1934 disappearance of young wanderer Everett Ruess, perhaps referring to his fondness for the Jules Verne character, Captain Nemo.

The landscape is dotted with built features and camps representing generations of ranching families whose struggles to raise livestock in a marginal environment left little time for writing histories. Foremost among them are the Perkins outfit in Comb Wash and the Nielson Brothers on Cedar Mesa. Both outfits have faded into history, their stories largely unwritten, and their places taken by livestock outfits less rooted in the landscape and less connected to its history. Yet archaeological traces of those old outfits continue, including corral, fence, and trough remnants. The most robust expressions are "ranchscapes" with cabins and associated features, such as those left by the Perkins brothers in Comb Wash. A rock-walled dugout ruin at Arch Canyon is probably an 1890s milk house associated with a dairy operation known only through a reference to "the old milk ranch grounds" in archaeologist T. M. Prudden's 1900 diary entry at that location. A rock-fronted cabin in Johns Canyon marks the site of a homestead effort by ex-Sheriff Bill Oliver and his grandson

Sweet Spring cabin, Comb Wash. The only clue to this cabin's history is the name "Earl Perkins" penciled onto a flattened cardboard box used to line the attic space. PHOTO: WINSTON B. HURST

"Nod" Shumway of Blanding, both of whom were murdered near there in 1935.

Many historically interesting trails and road traces survive, including a series of road realignments around and through Comb Ridge between Bluff and Mexican Hat. This outdoor museum includes parts of the first constructed road through Comb Ridge at Navajo Spring, which replaced a wagon road down lower Butler Wash. The latter is one of the best-preserved wagon-road segments in the region, still unaffected by off-road motor vehicle traffic.

The Navajo Spring road was built to support a minor 1910s oil "excitement" around Mexican Hat that left archaeological evidence of drilling operations in Johns and Slickhorn Canyons and in scattered locations to the east and south. Sporadic drilling occurred in Comb Wash and on the mesa in the 1950s and after. Sites predating the age of drill pad and access road "rehabilitation" retain strong and interesting physical expressions of historical details not recorded elsewhere.

Many traces of protohistoric and historic human activity are open-air wood features. Their deterioration is being significantly accelerated by people who dismantle hogans, wickiups, corrals, and fences for firewood, who blade wagon road and trail traces to make the world more accessible to off-road vehicles, who throw historic artifacts into the river to watch them splash, who strip the land clean of artifacts in misguided attempts to clean up "trash." We can only hope that archaeologists succeed in adequately documenting these traces before they vanish altogether.

Food for Thought...

"Older Utes would say that all of San Juan County was special. That is why they never left this area. A lot of Ute families roamed the whole country. No one really owned the land. It was as if it owned us—the Ute people." — Billy Mike, Ute elder (1895 [?]–2001), published in Robert S. McPherson, *As If the Land Owned Us* (University of Utah Press, 2011)

"Contrary to the beliefs of many, southeastern Utah was not an empty place that no one wanted, just waiting to be inhabited by European settlers or discovered as a recreation playground. Rather it was, and remains, our home. We have and still do cherish these lands."
— Willie Grayeyes, Navajo, in an op-ed published in the *Salt Lake Tribune* on May 9, 2014

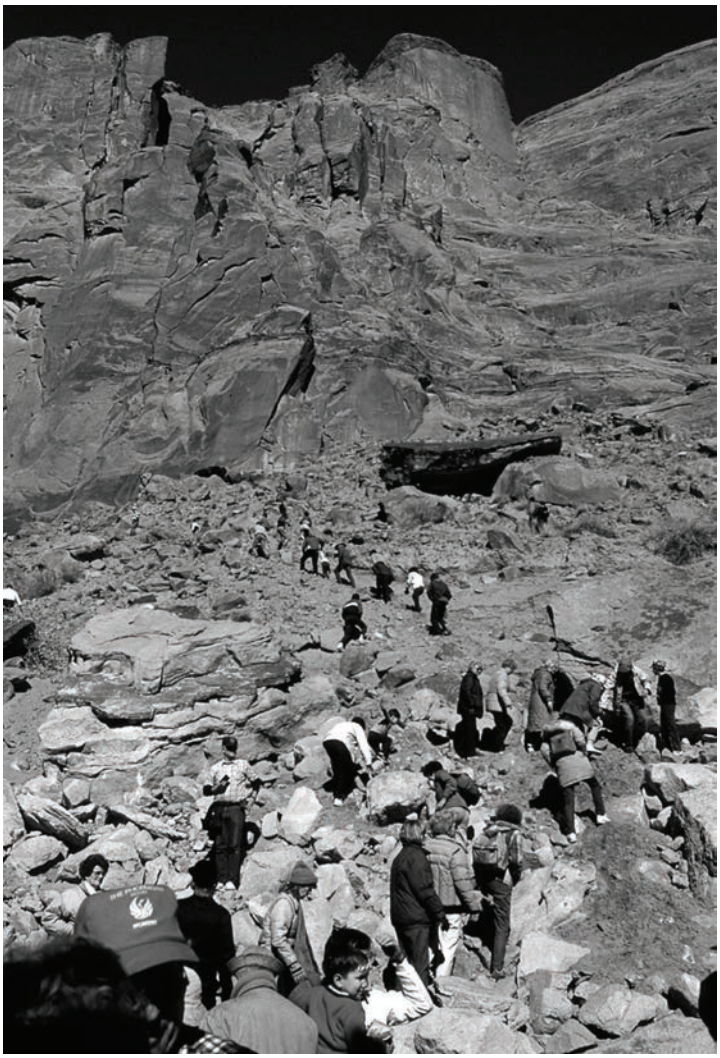
The San Juan Mission

STEWART AITCHISON
NATURALIST

In autumn 1879, a group of more than 230 Mormon pioneers—about half of whom were children—set out to traverse southern Utah. Averaging less than two miles a day, their journey turned out to be one of the slowest wagon trains in North America, the only one that went eastward, and one of few that actually gained members, due to the births of two babies who survived.

The Church of Jesus Christ of Latter-day Saints officially designated this extraordinary trek "the San Juan Mission," but today it is also known as the Hole-in-the-Rock Expedition (see map on pages 4–5). The group's mission was to settle along the San Juan River in southeastern Utah. Their task was to make peace with the local Navajo, Paiute, and Ute people, and to provide a virtuous foothold in a wicked part of the Utah Territory described as "a point of interception of bank robbers, horse thieves, cattle rustlers, jail breakers, train robbers, and general desperadic criminals."

As families from southwestern Utah prepared, a scouting party set out to determine the best route. They first ventured east, crossing the Colorado River at Lees Ferry, and then came through northeastern Arizona's Navajo country. The scouts finally established a crude settlement, which they christened Montezuma Fort, at the confluence of Montezuma Creek and the San Juan River. Considering the Navajo route too dangerous, the scouts decided to explore a more northerly route, which included parts of the Old Spanish Trail. Their return trip took about six weeks, which they felt was too long—why travel 450 miles to reach a point only 200 miles due east? The main party was anxious to depart, so the group made the fateful, last-minute decision to try a more direct, uncharted route.



Descendants of the pioneers visit the Hole-in-the-Rock in 1989. They are ascending what their forebears had descended, at an average grade of 25 degrees, but as steep as 45 degrees in some places. PHOTO: STEWART AITCHISON

The pioneers expected the journey to take five or six weeks, giving them time to build cabins for the winter and be ready to plant crops the following spring. They did not realize until it was too late that they were passing through some of the Southwest's most rugged country. Their daunting trip would ultimately take six months, demanding incredible fortitude and faith.

Even after two months on the trail, the wagon train had not yet crossed the Colorado River. The pioneers had to blast a remarkable road down a steep, narrow notch (the Hole-in-the-Rock) and then hang a road across a nearly vertical cliff face to reach the bank of the Colorado at the bottom of Glen Canyon—a descent of about 1,000 feet. They also had to construct a ferry in order to float the wagons across.

An example of the kind of wagon that weathered the incredible expedition. While the pioneers toiled with road building and river crossing at the Hole-in-the-Rock, a scouting party went ahead to determine a route for the wagons. Four scouts headed out with only eight days' rations. They found the terrain more hazardous and challenging than they expected. A week later, they were still trying to find their way across Cedar Mesa. Finally, twenty-four days after departing the Hole, the scouting party returned on January 9, 1880, emaciated but alive. The wagon road through the Hole would take another two weeks to complete. PHOTO: STEWART AITCHISON

On March 13, 1880, the second major blizzard struck the train. High winds ripped wagon covers and upended tents. To circumvent the maze of canyons around Grand Gulch, the road had to hug the base of Red House Cliffs and then pass close to the Elk Ridge escarpment before heading southeast across Cedar Mesa. The portion of the route pictured here has been developed as part of the county road network. PHOTO: STEWART AITCHISON

Ultimately, it took more than three months just to reach the east side of the Colorado River. Then, the eighty-three wagons, together with herds of cattle and horses, creaked toward Grey Mesa, Clay Hills Pass, and Cedar Mesa. The pioneers' diaries note Indian ruins and ancient trails. In her writing, Elizabeth Decker opined, "It's the roughest country you or anybody else ever seen..."

On Cedar Mesa, ground conditions varied from deep snow to bottomless mud. At times, the train extended over 30 miles. When an old Ute man who had never seen a wagon in the area encountered the pioneers, he asked where they had come from. When they replied, he threw up his arms in disbelief!

As the train rounded the head of Grand Gulch at the base of Elk Ridge, the Cedar Mesa woodland grew denser, requiring much axe-work to enable the wagons to pass. In fact, the pioneers named the mesa after its abundant "cedars" (juniper trees). Whenever they reached a natural clearing or flat, they named it—Harmony, Grand, Mormon, Long, Snow.

By the end of March, most of the wagons had descended into Comb Wash. Comb Ridge loomed ahead with no breaks suitable for a wagon road. The spring flood of the San Juan River left no room for a road at the base of the cliff. The group carved another dugway up steep slickrock—San Juan Hill—which allowed access to the flatter terrain east of Comb Ridge.

On April 6, 1880, within 20 miles of their original destination of Montezuma Fort, they lost their will to go any farther. The flat river bottom around Cottonwood Wash looked fine for farming. Bluff City was born.

Photographing Cedar Mesa

DONALD J. ROMMES
PHOTOGRAPHER

ART /ärt/ *noun: art; plural noun: arts; plural noun: the arts*
1. the expression or application of human creative skill and imagination, typically in a visual form … producing works to be appreciated primarily for their beauty or emotional power.

When archaeologist Bill Lipe and I agreed to collaborate on a book of photography about Cedar Mesa, we were firmly rooted in a long tradition. The academic discipline of archaeology and the science of photography each originated in the first half of the nineteenth century. People quickly accepted photographs as valid representations of reality, and archaeology was an early and enthusiastic adopter.

*Roof remnants against natural alcove patterns. Minor White (1908–1976), an American photographer and photographic educator, taught that, "One should not only photograph things for **what they are** but for **what else they are**." He may have had archaeological sites in mind. Archaeology may be understood as the study of sites in order to resurrect and comprehend the now-invisible lives and culture of those who lived there. An archaeological photograph, once made, immediately becomes itself a historic artifact—a physical record of something real at a moment in time ("what it is"), but implying past lives that can no longer be photographed ("what else it is"). By looking **at** a photograph of a site, we see the structure the photographer wants us to see, in the way he wants it to be seen. By looking **through** an artistic photograph, we might appreciate the implied past.* PHOTO: © DONALD J. ROMMES

In the early days of archaeology, a photograph was a novelty, and could generate the sort of public enthusiasm for a project that could translate into financial support. As photography became more common, general principles of archaeological photography evolved. Simultaneously, there was a movement within photography to adopt standards of artistic composition that were intended to elevate photography to an Art, similar to painting. As people were gradually exposed to better photography, their tastes became increasingly sophisticated. Thereafter, a photograph often failed to resonate with the viewer unless it depicted something entirely new, showed something in a novel way, or rose to the level of Art.

Before the ascendancy of the Internet, the unspoken ethic embraced by those of us who loved Cedar Mesa was that, in order to preserve its archaeological sites, we would not publish their images or locations. That ethic, of course, is no longer shared. GPS coordinates and hiking directions to sensitive sites are routinely put online, and more photographs of Cedar Mesa structures and rock art have been uploaded than ever appeared in print.

Consequently, visitation has increased dramatically—and with it, acts of vandalism and unintended damage. Land managers now believe that places such as Cedar Mesa are best preserved through public education and the funding that comes with a protective federal designation (pages 47–49). But how does one generate the support necessary to make that happen?

The answer is complex, but I believe photography has a significant role to play. Originally, I made photographs of the structures and rock art of Cedar Mesa for my own use. I tried to convey what I felt when I visited a structure or a rock art panel: not only the beauty of what was present, but also the poignancy of what was missing—the people, their culture, their fear and isolation, their humanity. In other words, I aspired to make Art.

Can photographic Art motivate people to preserve Cedar Mesa? Bill and I certainly hope so. Almost everyone knows archaeology through photography. The long partnership between archaeology and photography has shown that a photograph can communicate the reality and details of a site. But we believe that an artistic photograph carries the emotional power needed to get the viewer to care about it, and caring is often the first step in protecting.

Masonry structure preserved by its location beneath a natural overhang.
PHOTO: © DONALD J. ROMMES

Don Rommes and Bill Lipe's book Cliff Dwellers of Cedar Mesa *was published by Canyonlands Natural History Association (Moab, Utah) in 2013.*

Food for Thought...

"Leave your prayers here. Leave your spiritual consciousness here. But don't take anything with you. Only thing you can take is what will fill your heart. That's all you need." — Rose Simpson, Santa Clara Pueblo, *Visit with Respect*

Cedar Mesa's Uncertain Future

JOSH EWING, EXECUTIVE DIRECTOR
FRIENDS OF CEDAR MESA

Breathtakingly beautiful and wonderfully wild, the Greater Cedar Mesa area is sacred to many people. Several Native American tribes view it as an ancestral homeland, and they continue to visit for ceremonial purposes. People from around the world come to connect with those who came before in a place that still offers solitude and escape. Mormons consider this a spiritual place linked with the pioneers who made an arduous trek across the region.

Thousands of cultural sites from before and after the arrival of Europeans blanket the Greater Cedar Mesa area. Within the 700,000-acre region the Friends of Cedar Mesa have identified as being in critical need of protection (see map on pages 4–5), there are an estimated 56,000 archaeological sites. The value of these sites lies not just in their density, but also in their quality and preservation. Nowhere else will you find so many well-preserved cliff dwellings and rock art panels in an undisturbed backcountry. This is truly America's last great outdoor museum, where visitors can experience unmatched scenery, ancient structures, or rock art panels around almost every bend.

Still, this magnificent landscape, with its fragile links to our collective past, faces many threats. On a regular basis, looters steal things that tell ancient stories. Vandals eradicate priceless

Aerial view of the canyons of Owl Creek (foreground) and Fish Creek (middle distance) in Cedar Mesa, looking southeast in afternoon light, with Comb Ridge in the background. PHOTO: © ADRIEL HEISEY

art from sandstone cliffs. Uneducated visitors devastate vulnerable sites and destabilize centuries-old walls. Irresponsible motorized-vehicle operators leave designated roads and churn mesa-top sites. Cattle trample scientifically valuable trash middens. And the advent of fracking technology threatens to turn parts of the area into industrialized oil fields. *If we do not address these threats now, Greater Cedar Mesa will quickly become a dramatically different place.*

Aerial view of the Bears Ears and part of the southern escarpment of Elk Ridge. The Bears Ears have an important role in Native American oral histories about the Cedar Mesa region.
PHOTO: © ADRIEL HEISEY

A Special Designation for a Special Place

Preserving this place for our children and grandchildren will take a concerted effort by local advocates, Native Americans, archaeologists, conservation organizations, land managers, elected officials, and interested citizens from all across America. Although there are actions we can take now to slow the gradual destruction, we need a permanent protective designation, such as a national conservation area or national monument, so that protecting cultural resources will be the management priority. And we need to provide land managers with the resources they need to work with citizens to protect the area.

Many are concerned that a conservation area or monument designation would only attract more visitors. Though this may be true, visitation is already increasing rapidly, due to the attraction felt by anyone who sees pictures of or reads articles about the area. Those images and reports spread quickly in this digital age. We cannot put Google out of business, so we cannot ignore this reality.

Detractors also worry that a designation would place limits on those who have walked unimpeded in the area for decades—and some restrictions *are* inevitable. Smart management, however, would probably result in a few zones that are "hardened" for mass visitation, leaving the vast backcountry to hikers seeking personal discovery.

Simply put, supporting the status quo is not a tenable response to the threats facing the Greater Cedar Mesa area. Gone are the days when secrecy and remoteness seemed adequate protections. That path—if it were ever true—is now a mirage leading to destruction. Protective policies and adequate management resources are essential.

The Path toward Protection

The Bureau of Land Management (BLM) manages most of the Greater Cedar Mesa area. Although the agency has conservation goals, these are embedded in a larger mandate, known as "multiple use," that attempts to be "all things to all people, in all places." Due to chronic underfunding and the conflicting demands of multiple use, the only real path to preserving Cedar Mesa's unique public values—prioritizing cultural and natural resources—will come from action by Congress or the president.

Of the two options, we favor a congressionally designated national conservation area (NCA). More flexible and less likely to drive as many new visitors, an NCA would allow us to engage local people in the management process. Furthermore, only Congress can designate wilderness areas, and an Act establishing an NCA would permanently designate significant areas of wilderness-quality lands. The NCA process could be a win-win-win proposition for conservation, access, and local involvement.

Should Congress and local leaders fail to show a commitment to long-term stewardship, however, the other path to protection would be a proclamation by President Obama designating a national monument (see *Archaeology Southwest Magazine* 26:1). If ever there were a place the Antiquities Act was meant to protect, the Greater Cedar Mesa area and its antiquities are just such a place.

One way or the other, protection is needed now.

Communities in Greater Cedar Mesa celebrate the deep heritage of the place they call home. Some Bluff residents built this full-scale mammoth effigy in 2012. It was the central attraction in a "Burning Mammoth" solstice celebration of more than 12,000 years of human life in the region, as attested by a Clovis-era site near Bluff. The community plans to build and burn a replica of an extinct bison in winter 2014–2015. PHOTO: JONATHAN D. TILL

Friends of Cedar Mesa, Leading the Charge from Bluff

Proposals for a new federal designation for the Greater Cedar Mesa area have been developed by the Utah Dine' Bike'yah (a local group working with the Navajo Nation); the National Trust for Historic Preservation; and my organization, the Friends of Cedar Mesa. Our small nonprofit is spearheading an effort to conserve our region's precious cultural and natural resources. Based in tiny Bluff, Utah (population 250), we live and breathe our stewardship mission. But we are only a small group in rural Utah, isolated geographically and politically. Thus, *we need support from everywhere.* We have set the audacious goal of raising $100,000 for a campaign to designate Cedar Mesa for permanent protection. It is a big figure, but the cultural, natural, and scientific values of Cedar Mesa call for no small effort. Read our proposal and learn more about our work at *cedarmesafriends.org*.

Food for Thought...

"I ask your respect for these sites. It's coming from the bottom of my heart. Whether you're out there alone in the back countries, or out there on a tour group, you ask permission from the ancestral spirits that you are coming in. And when you leave, just say, 'Thank you for sharing your house today.'" — Ernest Vallo Sr., Acoma Pueblo, *Visit with Respect*

A lone tree on a boulder at the rim of Grand Gulch in morning light. PHOTO: © ADRIEL HEISEY

Cedar Mesa, Cedar Mesa

Crowned by an old growth forest of pinyon and juniper
Living trees dating back to 1491
Entrenched with Grand Gulches
Past home to thousands of people
Generations not just surviving but flourishing.

Today…
A cairn-builder, ruin-bagger playground
New agers' crystal and corn-pollen depository
Photo backdrop and outdoor writer's inspiration
Rock art enthusiasts' gallery
Archaeologists' field lab
Navajo Nation firewood provider
Holding area for cattle
Scarred testimonial to off-road vehicle abuse
Looters' treasure chest
Outdoor educators' classroom
Desperadoes' hideout
A curiosity to most and a holy refuge to some.

Orion, although surely recognized by other names,
Still tracks across the mesa's night sky beyond city lights.
Ravens still cajole a raucous early morning wake-up call
And sunsets still consume vast expanses of wilderness.

The wrong place to drill and frack for oil and gas
The wrong place for livestock to shade up in ruin alcoves
The wrong place to slip potsherds and arrowheads into one's pocket
The wrong place to share sensitive archaeological locations over the World Wide Web
The wrong place to visit without proper, leave-no-trace ethics
Certainly, the wrong place for unrestricted multiple use.

A good resting place for meteorites or the ashes of a friend or lover
A good place for Native Americans to revisit and celebrate their ancestral homeland
A good place for a mother cougar to have dinner with her kid
A good place for a black widow spider to avoid the exterminator
A good place for pack rats and deer mice to shop for trinkets and scraps
Indeed, a good place worth preserving.

— Vaughn Hadenfeldt, President
Friends of Cedar Mesa

Archaeology Southwest
300 North Ash Alley Tucson, Arizona 85701

NONPROFIT
ORGANIZATION
U.S. POSTAGE PAID
TUCSON, AZ
Permit No. 878

back sight

Advocacy is at the core of Preservation Archaeology at Archaeology Southwest. This double (actually, double-plus) issue of *Archaeology Southwest Magazine* expanded as needed to meet our specific advocacy goal—**to promote federal action on a national conservation area or a national monument to better protect Greater Cedar Mesa.** This objective also commanded photography that would do justice to the region's grandeur, and I am deeply grateful to photographers Adriel Heisey and Donald Rommes, as well as to several donors who made this special issue possible.

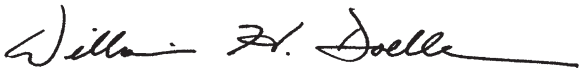
A drilling rig on Cyclone Flat, looking north-northwest toward Bears Ears.
PHOTO: © ADRIEL HEISEY

Greater Cedar Mesa is not only a tortuous and fantastic landscape, but also a cultural one. People transformed the natural landscape to varying degrees in order to meet biological, social, and spiritual needs. Traces of their lives include millennia-old Paleoindian dart points, kinetic panels of pecked and painted rock art, arrow-straight Chacoan roads, astonishingly pristine cliff dwellings, subtle artifact scatters signifying Cedar Mesa's past as an agricultural "breadbasket," standing and fallen logs of Navajo hogans, and segments of routes hard-wrought by Mormon pioneers.

Each archaeological site—and there are some 56,000 of them within the boundaries proposed by the Friends of Cedar Mesa—is part of a much greater story that is gradually emerging. Enduring protection is essential to fully realizing the depth and breadth of that saga. Near-term action by Congress could achieve long-term protection by establishing a national conservation area and wilderness areas.

Absent congressional action, a presidential proclamation could create a new national monument. Almost every president since Theodore Roosevelt has used the Antiquities Act of 1906 to accomplish conservation goals in the national interest. Greater Cedar Mesa plainly qualifies to benefit from these powerful fifty words of the Antiquities Act: "The President of the United States is authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments…"

The stunning natural beauty of Greater Cedar Mesa is a fitting complement to the extraordinary archaeological and historical riches that abound across its cultural landscape. We must pass this legacy on to future generations. The opportunity for action is imminent.



back sight (băk sīt) n. 1. a reading used by surveyors to check the accuracy of their work. 2. an opportunity to reflect on and evaluate Archaeology Southwest's mission.