Preservation is a necessary part of archaeological education efforts. I’m not always comfortable in delivering that message, not because I don’t believe in it, but because I don’t want to believe just how necessary it is. It’s also difficult because we are always walking a fine line between education that results in respect and understanding vs. education that results in destructive interest and actions.

This past month has brought the issue to my attention in a number of different ways. Many of the artifacts we use in our education programs are “guilt collections,” illegally or unconsciously collected artifacts that have lost their scientific value. While their information potential is compromised, they can be used to teach both adults and children. But in using them to teach, we risk glorifying the artifacts in unintended ways. Our challenge is to embed a preservation or conservation message within even a two minute encounter with a visitor. That challenge is tough, but it is essential and we have to consciously work toward that goal.

More directly, talking to land managers has revealed that the conscious looting of archaeological sites continues and may even be accelerating. Inspired by media and the “thrill of discovery,” individuals apply the “if it is public, it must be mine” perspective to sites on public lands. They destroy portions of sites and the scientific information that might have been recovered in exchange for the selfish satisfaction of discovery and possession. The thrill they experience is transitory, while the damage is forever. At worst, their looting is mercenary, looking for objects to sell. At best, the objects they seek, whether a sherd or a pot, are touchstones for their personal memories of excitement. But within a year, or a decade, or a generation, even those feelings fade or are lost completely. In contrast, the aesthetic damage to a site, the sense of violation felt by descendants, and the permanent loss of scientific potential are eternal.

Most Friends of Archaeology members understand and embrace the conservation and preservation message. But the education goals of FOA mean that we are constantly working to recruit new people and imaginations. Even if you fully understand the message, please have patience with us as we revisit and repeat it time and time again. Archaeological resources are endangered, and we need everyone’s help to make sure we influence public interest toward respect and away from possession and destruction.

“Save the past for the future” isn’t an idle slogan, it’s an important value that we need to be teaching every day.

--Eric

Brown Bag Lunches at CNMA

June 23
Under the Landscaping and Pavement at the Drury Hotel Site. Investigations conducted beneath the landscaping and pavement at the Drury Hotel Building have revealed a series of features and foundations documenting important aspects of Santa Fe history, none of which was visible from the surface. Spanish Colonial deposits bracket the Pueblo Revolt, and shed light on construction of the second parroquia. Numerous foundations from the Sisters of Charity complex document the locations of these buildings and provide details of construction. **OAS Project Director James Moore**

July 14
Current Research in Archaeomagnetic Dating
OAS is the home of one of the only Archaeomagnetic Dating laboratories in the United States and is the repository of both equipment and files from previous research. Learn about current research in the discipline. **Eric Blinman PhD & Archaeomagnetic Dating specialist Jeff Cox.**

August 11
The Missed Opportunity in NAGPRA. Native American Graves Protection & Repatriation Act. **Eric Blinman PhD**
SPARKING THE IMAGINATIVE FIRE: 24 YEARS OF OAS EDUCATION OUTREACH

By Chuck Hannaford, OAS Project Director

The Office of Archaeological Studies Education Outreach Program is 24 years old, and if it were an average state employee, it would be contemplating retirement. Looking back over the annual Summary Statistics brings back memories. The 1991 inception year had an outreach count of 698 individuals with most of the venues in Santa Fe. The 2014 year had an outreach count of over 11,000 individuals with venues in well over half of New Mexico’s 33 counties. We have currently presented Education Outreach programs to over 145,000 New Mexicans, and our efforts have been recognized twice with prestigious national Excellence in Public Education Awards. One of our strengths is presenting programs to a wide range of diverse audiences in small towns such as Jal, Tatum, Columbus, Hatch, Gila, and Anton Chico to name just a few. Residents of these far flung communities often do not have access to Santa Fe’s concentrated cultural life, and it has been an explicit part of the OAS mission to share our programs with these underserved communities.

I often contemplate what makes Education Outreach a worthwhile endeavor, both for me and for the public. I think I would call it the Spirit of Outreach, or sparking the imaginative fire. I recently saw this fire while presenting a program on the atlatl at the Museum of Indian Arts and Culture’s portal. It is hard to beat the romantic ambience of this venue with the old Laboratory of Anthropology building coupled with contemporary Native American programming. A young couple in their early 20s was on vacation from the east coast visiting museums. They ended up spending nearly two hours discussing the atlatl and other hunting artifacts, which they had never seen. Being able to touch an atlatl and ultimately throw it sparked the fire and it was probably a highlight of their vacation. I saw the fire in the eyes of a Chinese Physicist during a presentation at Puye. He had spent an entire career in the field of nuclear physics, but he had never considered contemplating time and the human experience. Like the young couple, he also spent almost two hours handling atlatls and other replicas of ancient artifacts. The fire of imagination had been sparked. Recently, we hosted several visiting cultural scholars from Algeria. They had never encountered the atlatl in their professional museum work in North Africa. They all had their pictures taken holding the atlatl and spears. The spark of imagination had been fired. These stories go on and on, with Native Americans as well as with tourists. Artifacts from the past such as the atlatl, turkey feather blanket fragments, yucca cordage, and strike-a-lights are excellent cultural ambassadors that have fired the imagination of New Mexicans of all ages. Igniting this personal imaginative fire is what makes education outreach so worthwhile and rewarding for me, and I strongly believe that this imaginative fire will contribute to the ultimate survival of Museums and archaeology, as well as the values of preservation, cultural diversity, and sustainability. It all starts with a spark … 

[Editor’s note: Chuck Hannaford is the recipient of the 2012 New Mexico State Historic Preservation Office Award for Archaeological Achievement and is in his 37th year of OAS employment.]
Plasma Radiocarbon Sampling at CNMA

The closest thing OAS has to Star Wars (or is it to Young Frankenstein?) is coming together in the back lab at CNMA. Dr. Marvin Rowe, John Martin, Mark MacKenzie, Jeff Cox, and I are assembling a non-destructive low energy plasma radiocarbon sampling device with the support of funding from the Don Pierce bequest. We can’t stress enough what a big deal this is in terms of cutting edge and exciting research, and this is the first of a series of articles by Marvin et al. that explain what it is and what “the machine” does.

Radiocarbon Dating
The Prequel
Eric Blinman and Marvin Rowe

Radiocarbon dating is synonymous with archaeology in the minds of many, and is one of the most common archaeological dating techniques used today. The basic scientific principles on which the technique is based are simple, and the technique is generally reliable, but implementation over the past 65 years has proven to be relatively complex. The principles behind radiocarbon dating involve the process by which carbon exists in equilibrium in the earth’s atmosphere: In the upper atmosphere, cosmic radiation creates a radioactive isotope (C-14) from carbon atoms. At the same time, radioactive decay on the earth’s surface eliminates half of the previously created C-14 every 5,730 years (the half-life). This simultaneous creation and decay results in an equilibrium concentration of radioactive carbon in the atmosphere, where it is taken up by plants and animals. Therefore, living tissues contain C-14 at the equilibrium concentration, but as soon as a plant or animal dies, the decay clock begins to tick, and the proportion of C-14 in the tissue slowly decreases. By measuring the ratio of radioactive to non-radioactive carbon isotopes in a sample of tissue, and by assuming that the ratio started at the equilibrium level, we can estimate the amount of time that has passed since the tissue was last in equilibrium (was last alive). Expressed in “radiocarbon years,” this is the radiocarbon date of the sample.

Reality isn’t quite as tidy as is the straight-forward model. One of the simpler but serious problems with radiocarbon dating is the potential contamination of a sample with older or younger sources of carbon. Another problem can be the destructive nature of the sampling process. In the early days of the technique, isotope measurement was based on counting decay activity, and samples as big as your thumb were needed. Today, accelerator mass spectrometry (AMS) is used to measure the isotope content of most samples, and sample size requirements have been reduced down to a grain of rice or smaller. However, the risk of contamination remains a problem, both when the material is in the ground and during excavation or laboratory handling. Before AMS measurement, if archaeologists wanted to date a basket, a good sized chunk had to be destroyed in the process. The smaller size of AMS samples make the destructive dating decision much easier when it comes to something like a basket, but collecting the sample still damages the object, and that prevents some museum-quality artifacts from being dated.

These two problems lead to the potential of plasmas as a means of collecting carbon for radiocarbon dating in conjunction with the AMS measurement technique. A plasma is an excited gaseous state of matter, and familiar examples are the surface of the sun or the glow of a neon light. While the sun is an incredibly hot plasma, plasmas can be created and maintained at room temperature. Twenty-five years ago, Marvin and his chemist colleagues and students started to explore the potential of using a low-temperature plasma in the collection of radiocarbon samples. This technique has the promise of simultaneously addressing aspects of the contamination and destruction problems associated with usual radiocarbon sampling procedures.

(CONTINUED ON PAGE 7)
From the Field

From late August through October, OAS archaeologists Nancy Akins, Jeff Boyer, Isaac Coan, Susan Moga, Ann Stodder, Mary Weahkee, Karen Wening, and Dean Wilson excavated two shallow rockshelters and the fronting talus area of a site located north of Mora, New Mexico. The project was done for the New Mexico Department of Transportation prior to improving a narrow and winding road. The area is picturesque with a creek running along the road and ponderosa pine, oak, willow, and mountain meadows surrounding the site. We were able to stay a short distance from the site and the crew spent most evenings hiking and fishing. No bears were sighted but two came close enough to send a hiker and a fisherman scurrying in the opposite direction.

The site was used as a hunting camp from at least the 1100s up into modern times. Neither rockshelter is deep enough to provide more than temporary shelter. Most of those who used the site camped in the area that is now the road. Private developers built the road in the 1980s and much of the site was probably removed at that time. Regardless, they left the shelters and cliff edge intact and this area contained a considerable amount of bone, chipped stone, ground stone, and ceramics. Projectile points were common and range from very small almost toy-like to the more typical Pueblo-sized points. A metal point made from a barrel hoop was found in the more southern or South Shelter.

Excavation was a challenge. Slopes were steep and archaeologists used to digging in flat areas found it hard to adjust to excavating at angles following the slope contour. We soon discovered that much of the talus we were carefully excavating was a slope created by bulldozers and subsequently covered by a thin layer of soil. The soil, a rich black dirt that is the result of creek overbank flooding, and the artifacts found in the soil on the talus had eroded down from the shelter and cliff edge or was pushed there during road construction and maintenance. Analysis of the large collection of artifacts and soil samples and radiocarbon and ceramic dating will tell us much about how the site was used.

Karen Wening excavating in South Shelter

Excavations at Coyote Canyon Rockshelter

By Nancy Akins, Project Director OAS

Isaac Coan, Ann Stodder, Karen Wening and Mary Weahkee excavating the South Talus
The main highlight of this field trip was to examine a battle site between Apaches led by Victorio and Buffalo soldiers of the Ninth Cavalry led by Captain Henry Carroll. The trip started with a talk by Karl Laumbach at La Posta de Mesilla restaurant on Friday night. The slide presentation illustrated the archaeological investigation of the Hembrillo Basin battle as well as other research he is conducting in southern New Mexico. Using techniques pioneered at the Little Bighorn battlefield, the investigation involved using metal detectors to locate spent cartridges from the battle and accurately mapping their positions with GPS survey equipment. The identification of ammunition type allowed the researchers to distinguish between Apache and U.S. Army combatants and allowed for accurate mapping of troop positions throughout the fight. The mapping also showed where the Apaches retreated as cavalry reinforcements forced them off the high ground. Forensic analysis of the cartridges further enabled the researchers to chart the movements of individual combatants by analyzing a unique set of marks which can be traced to a particular gun allowing one to track the weapon’s movement around the battlefield.

Laumbach’s research also corrected some misperceptions of the battle. For instance, it was reported and often repeated by historians that the Buffalo soldiers drank bad water before the engagement and were sick when the fighting began. But the archaeologists discovered that Captain Carroll had brought a water wagon with him allowing the soldiers to drink fresh water the day before the battle.

On a Saturday with perfect conditions for a field excursion, seven of us drove to meet Dr. Stan Berryman, archaeologist for White Sands Missile Range, who led us to Hembrillo Canyon. Near the mouth of the canyon, we stopped to view an agave roasting pit. Charcoal recovered from the pit revealed a radiocarbon date prior to 1500 A.D.

A few miles farther, we stopped at the scene of a skirmish that occurred the day before the main fight. The researchers marked where they had found a cartridge with metal tags. We even found a cartridge still intact! At the site of the main battle farther up the canyon, Laumbach described how Victorio had set a trap for the Buffalo soldiers and surrounded them. Over 800 cartridges were tagged here, and several more intact cartridges were noticed, two with unfired rounds. Observing the rugged terrain in situ helped one to understand how the events of 135 years ago transpired.

On the way back down the canyon, we observed two petroglyph sites. Hembrillo Canyon is breathtaking and we were privileged to have had the rare opportunity to see it.

Photo by Bill Auby: Petroglyphs of animal figures on the canyon wall in Hembrillo Canyon.
ROAMING THROUGH THE LOWER RIO CHAMA VALLEY
October 18, 2015

The lower Rio Chama Valley stretches from Abiquiu Reservoir to the river’s confluence with the Rio Grande. The valley and its tributaries—El Rito, the Rio Ojo Caliente, and the Rio del Oso—was home to a large population and some of the largest Southwest pueblos of the fourteenth and fifteenth centuries. The valley lies between the Four Corners region and the Rio Grande Valley, which leads some archaeologists to believe that it was settled by migrating Mesa Verde people who were generally moving downslope toward river valleys. Seventeen pueblos were built in the epoch following Mesa Verde’s depopulation and the appearance of large northern Rio Grande pueblo villages. There has been much recent debate about the origins of the people who lived in these prehistoric towns. Were they immigrants escaping a changing climate or cultural instability in the Four Corners area or were they a successful local population that grew naturally in size? The valley is also of particular interest for the unique prehistoric cultivation methods of pueblo farmers, noted for the construction of rock-gridded fields and rock-mulches.

Our FOA tour with OAS Director emeritus Tim Maxwell PhD will visit three prehistoric places of interest. First, we will stop at Ponsipa’akeri, with its tall central mound suggesting that the pueblo was three stories high in places. The site has an estimated 1,000 rooms and may have been occupied from the thirteenth century up to Spanish contact. On the east side of the Rio Ojo Caliente, the village was laid out in eight large roomblocks.

Second, we will stop and hike to either the prehistoric town of Hupobi or Posi-ouinge. Which one we visit will be determined primarily by Mother Nature, since visiting Hupobi (our first choice) requires crossing a river that runs high after any rainstorm.

Hupobi, has about 900 ground floor rooms surrounding three plazas. Surrounded by rock-gridded fields that were studied by Native American students in the 1980s, there is also an important Tewa World-Quarter shrine nearby.

Posi-ouinge, with its estimated 2000 rooms, was one of the largest in the region. Tewa legend says that the village was built after the Tewa Winter people and Summer people reunited after years of separation and travel.

Last, we will drive for 20-30 minutes to El Rito and look at extensive examples of gridded and rock-mulched fields. These fields are unique in the northern Rio Grande region and thousands were built between the thirteenth and fifteenth centuries. The farming methods were successful in supporting a large population in a semi-arid, high-desert environment. A Museum of New Mexico project in the 1980’s discovered that cotton was one of the crops grown in these unique fields.

Trip Rating: Moderate to strenuous

The Hupobi or Posi-ouinge portion of the day will require moderate to strenuous hiking for a short distance. All trails are uneven and rocky. As always, a hat, sturdy shoes, water, and sunscreen are appropriate for these visits.

Reservations: Sign up begins on September 1, 2015 by calling 505-982-7799 x 5. Trip cost is $85 for FOA members / $95 for non-Members. Please check nmarchaeology.org or museumfoundation.org/friends-archaeology for updates.

Limit: 20 participants.
Thanks to Bob Mizerak

OAS has a long history of having fabulous volunteers. Bob Mizerak and his late wife Marjorie began volunteering at OAS during excavations at Palace of the Governors. Both of them were part of a group of volunteers who carried countless buckets of dirt, sorted thousands of artifacts throughout the winter and following summer of 2002 and worked into the summer of 2004 (it all sort of blends together now). Somehow we didn’t scare them off and Bob has been volunteering with OAS or Friends of Archaeology in some capacity ever since. Since 2013 Bob has been the chair of the Friends of Archaeology Activity Committee and has been responsible in part for the myriad hours of brainstorming and organization involved in bringing into fruition the many FOA trips that have taken place all over New Mexico. Both Friends of Archaeology and staff at OAS would like to wish Bob the best as he steps down from the board and off into new adventures and endeavors.

RadioCarbon Dating
(continued from page 3)

The simple part of concept is that a low-temperature oxygen plasma would nibble away carbon atoms from just the surface of an object, creating carbon dioxide whose carbon was derived totally from the sample, and then the carbon dioxide could be submitted for AMS radiocarbon dating.

The focus of the initial research on plasma sampling was rock art. Direct radiocarbon dating of rock paintings (pictographs) poses problems of small samples and samples that are at risk of contamination by both older and younger sources of carbon. Older carbon could come from the painting substrate (such as limestone), while younger carbon could come from carbonate or oxalate deposits that can form on top of the art over time. A low-temperature oxygen plasma would leave any carbonates or oxalates untouched, sampling only organic material associated with the pigments. The new technique worked, allowing the dating of some types of rock art for the first time, but as always, the devil is in the details.

Marvin and his wife, Kate, moved permanently to Santa Fe in 2002, and Marvin has attempted to continue his research on plasma sampling for radiocarbon dating. In collaboration with the Museum of New Mexico’s conservation division (Mark MacKenzie), and OAS (Jeff Cox and Eric Blinman), and bringing in the expertise of John Martin (retired LANL scientist), and with funding from the Don Pierce bequest, what is taking shape at CNMA is nothing short of remarkable!

(To be continued ...)
Dean Wilson in South Shelter prior to excavation