ALL POINTS BULLETIN

Colorado Archaeological Society-Denver Chapter

…in the future, as in the past, the gathering of information will depend to a great extent on cooperation between avocational and professional archaeologists. ~ H.M. Wormington, 1978

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Archaeological Highlights from the Member's Night Meeting
(Adapted from meeting notes by Stacy Greenwood - full notes below)

Photogrammetry in Archaeology – Josef Garret, Affiliate Faculty at Metro State University of Denver and Colorado State University

Photogrammetry can be defined as the process of taking two-dimensional (2-D) photographs of an object, and putting the photographs into a specialized computer software program to create a three-dimensional (3-D) model.

Photogrammetry can be used to monitor conditions of a structure or artifact over time by comparing it to earlier 3-D computer models. Photogrammetry can also be used in cases where physical artifacts cannot be safely handled, and can even allow for reproductions of those artifacts via the use of a 3-D printer. When used in conjunction with aerial photography, photogrammetric images can be used to created a 3-D model of an archaeological site (see Fig. 1). These and other applications, in addition to the relatively low cost and minimal learning curve required of photogrammetric equipment, make photogrammetry an important tool for the modern archaeologist.

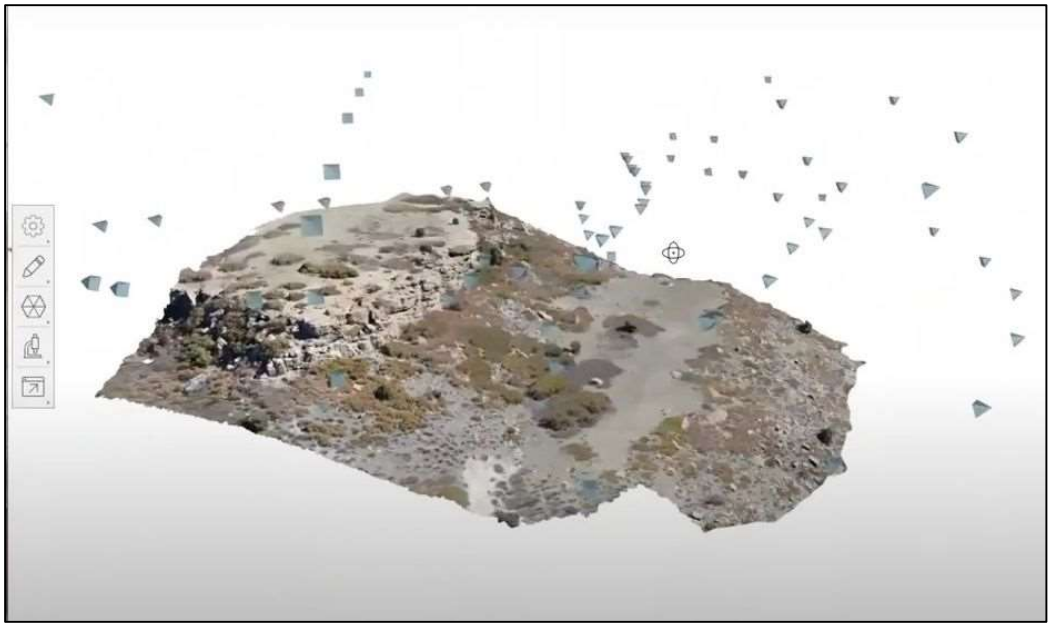

Figure 1. A 3-D model of an ancient rock shelter at the Cherokee Ranch Castle site created using drone photography and photogrammetric imaging (screenshot from the recorded presentation by Josef Garrett).

Archaeological Recovery Mission in France – Amy Gillaspie, Assistant Project Archaeologist, Paleocultural Research Group, Denver CAS PAAC Representative

In August, 2021, Amy Gillaspie participated in a four-week project in northern France. The excavation was coordinated by the Defense POW/MIA Accounting Agency (DPAA) in association with the Center for Environmental Management of Military Lands (CEMML), part of Colorado State University. The mission of the DPAA is to recover soldiers lost during wartime. In this case, the mission was to find the remains of a World War II B-17 bomber-pilot, who went down in a field after his plane was struck by anti-aircraft fire in 1944.

Figure 2. Students from CSU and University of Colorado – Colorado Springs sift excavated earth to locate material evidence of the plane and its pilot (from Schommer, 2021).

Field work consisted mainly of opening ten four-by-four-meter excavation units within thirty days, with expansions as needed should skeletal remains turn up. Due to limitations caused by the wet weather, seven units were opened. Because of the sensitive nature of the excavation only minimal information could be shared on the finds.

For more information visit the DPAA's website: https://www.dpaa.mil/.

See also: Schommer, Tim. 2021. CSU Center Works to Recover Remains of WWII Pilot in France. https://source.colostate.edu/csu-center-works-to-recover-remains-of-american-wwii-pilot-in-france/

A Trip to the Archives – Stacy Greenwood, Denver CAS Secretary

Our own Stacey Greenwood presented us with a CAS "trip down memory lane," as she revisited slides from Denver CAS field trips dating from 1952 to 1958, with most images being from 1952 and 1953. The slides were donated to the archive by an unidentified member, and illustrate the rich history of CAS's Denver Chapter.

Highlights from the slides include trips in 1952 and 1953 to the Wray Dune Fields in Yuma County. Additional slides documented visits to a Sopris Phase site in Las Animas County (1955), a trapper fort site in Montrose County (1957), Agate Bluff in Weld County (1958), as well as many other sites and artifacts. Please see the full summary of Stacey's presentation below in the December General Meeting minutes, as well as the recorded presentation on YouTube (https://youtu.be/AUhZK28sDAA).

Figure 3. Denver CAS members visit the Wray Dune Fields of Yuma County in 1952 (screenshot from the recorded presentation by Stacy Greenwood).

DC-CAS 2021 BOARD CHANGES

The Board could like to welcome new Board members Deb Bollig (Membership Secretary), Cindy Hammack (APB Editor), Josef Garrett (Director) and Michael Kolb (Director). We look forward to working with you. We would also like to thank outgoing 2021 Board members Kati Fay, Justin Kelley, Mandy Kelley and Tom Kubly for their service to the Chapter. A special thank you is also sent to Lynn Hoy, Linda Sand and Jon Kent for their work on the Board.

Archaeology in the News

Is Colorado Home to an Ancient Astronomical Observatory? The Question is Testing Archaeological Limits

Is Colorado home to an ancient astronomical observatory? (coloradosun.com)
Sun Temple in Mesa Verde National Park may have allowed Ancestral Puebloans to monitor the heavens. Unraveling its mysteries requires overcoming archaeology's troubled past.

Mesolithic Grave Found in Italy Held Remains of Female Infant

Mesolithic Grave in Italy Held Remains of Female Infant - Archaeology Magazine
Paleoanthropologist Jamie Hodgkins of the University of Colorado, Denver, and his colleagues have analyzed the remains of an infant discovered in a cave in northwestern Italy in 2017. The study included radiocarbon dating of the bones, DNA and protein analysis, and microscopic examination of the teeth. The tests revealed that the baby, who has been nicknamed Neve, was a girl who died some 10,000 years ago at about two months of age.

What's in a Name: Mesa County Localities, Parts 1–3

What's in a Name: Mesa County Localities, Part 1 | Western Colorado | gjsentinel.com
What's in a Name: Mesa County localities, Part 2 | Western Colorado | gjsentinel.com
What's in a Name: Mesa County Localities, Part 3 | Western Colorado | gjsentinel.com
This is an interesting look at the history behind many of Mesa County's toponyms based on Frank Dawson's 1954 book, "Place Names in Colorado," as well as newspaper archives, and other online documents.

CAS Denver Chapter General Meeting Notes

DC-CAS OCTOBER 11, 2021 GENERAL MEETING MINUTES

The DC-CAS October General Meeting was held online on Monday, October 11, 2021 at 7:00 pm via the Zoom Platform. Craig Dengel opened the meeting by welcoming everyone and acknowledging that it was Indigenous Peoples' Day. Stacy Greenwood announced the candidate slate for the upcoming 2022 Board Elections, which would take place during the November 8th General Meeting. The candidates are as follows:

- President: Craig Dengel (Incumbent)
- Vice-President: Kayla Bellipanni (New)
- Secretary: Stacy Greenwood (Incumbent)
- Treasurer: Michele Giometti (Incumbent)
- Membership Secretary: Deb Bollig (New)
- CAS Representative/PAAC Coordinator: Amy Gillaspie (Incumbent)
- Directors: Michael Kolb (New) and Josef Garrett (New) – to replace outgoing Kati Fay and Tom Kubly

The following members have volunteered for the following non-elected positions for 2022:
- Historian: Ken Andresen (incumbent)
- APB Newsletter Editor: Cindy Hammack (new)
- DC-CAS Website Manager: Bill Haddock (incumbent)

Stacy also sought to hear from members who wished to make a presentation during Members Night on December 13th. She also noted that any members who wished to contribute to the APB newsletter (eg: book review, site visit, archaeology article), should contact the APB editor directly. Finally, Craig announced he was still working on securing a speaker for the November 8th General Meeting.

Craig Dengel introduced the evening's speaker, Brandi Bethke, Lab Director and Research Faculty, Oklahoma Archaeological Survey at the University of Oklahoma. The title of her presentation was, Recent Zooarchaeological Investigations at the Boarding School Site (24GL0302), Glacier County, Montana. The site is located on the Blackfoot Reservation, just north of Browning, Montana, and is under Blackfoot administration. During the 1950s, Thomas Kehoe conducted the first archaeological investigations of the Cut Bank Creek floodplain and nearby bluff over three field seasons.[1] In 2013, new excavations were conducted after the exposure of a bone bed during construction of a new school building. Excavations continued until 2016.[2] Bethke provided a brief discussion of the prehistoric chronology of the Northwestern Plains, which is broken into three periods:

1. Early Precontact Period (ca. 12,500 BCE -5,500 BCE)
2. Middle Precontact Period (ca 5,500 BCE - 600 BCE)

3. Late Precontact Period (ca 600 BCE- 1,700 BCE) which is further divided into two phases:

Avonlea Phase (ca 600 BCE – 850 BCE) and Old Women's Phase (ca 800 BCE – 1,700 BCE)

Between the Early Precontact Period and the Middle Precontact Period, evidence indicated bison hunting became increasingly complex and intense over time, with a focus upon acquiring choice bison meat cuts. During the Middle Precontact Period, acquiring choice bison meat cuts continued along with increased time spent processing the meat. For example, bones were broken up to access grease (to mix with pemmican and berries) and marrow to provide good protein sources. The Late Precontact Period saw an increase in production and labor investment such as the construction of corrals and stone drive lines. During the Avonlea Phase, there was an economic intensification centered around bison as the main food source. By 200 BCE, new bison drive and storage technologies were developing. During the Old Women's Phase, hunting communities became larger and more complex. Environmental conditions between 1,400 BCE and 1,800 BCE became more favorable to bison, thereby increasing their population. With an increase in bison, came an increase in the human population. Therefore, improved technologies to process and store bison products were developed as bison became an important commodity for local consumption and for trade to secondary markets (eg: agricultural groups). Bethke noted the key points related to the Late Precontact Period were the rise of large engineered landscapes (eg: cairns and drives), grasslands management, and construction and maintenance of drives. Ceremonies and medicines to call bison to the area (eg: Buffalo Calling Stones known as Iniskim) also became important during this time.

When looking at the communal investment in the larger landscape, evidence indicated that band-level communal hunting occurred during colder Fall/Winter months at intercept sites of known bison areas and wood and berry resources. Kehoe's excavations at the bluff slope in the 1950s revealed three cold weather occupations. The earliest occupation was a temporary campsite during the Middle Precontact Period. Two later occupations, during the Late Precontact Period, were hunting camps, one of which related to horse-mounted hunting. A smaller component was also found which was associated with another group, possibly the Shoshone. It appeared to have been occupied during the warmer summer months, while the Blackfeet were elsewhere. This may reflect a landscape shared by different groups at different times of the year.

Next, Bethke discussed the 2013-2016 excavations, which were carried out with cooperation between the Blackfeet and the Bureau of Applied Anthropology. Information was gathered from several resources such as archival materials, ethnographic interviews and zooarchaeology to provide new insights as how the Blackfeet used the environment in the face of change. A total of 9,286 unmodified faunal remains were recovered. Bison were the most frequent bones in the assemblage at 21%. Other Artiodactyla present in the assemblage included deer (0.09%) and elk (0.03%). Amongst Carnivora, there were Domestic dog/wolf (Canis sp.) at 0.08% and Cat (Felis domesticus) at 0.01%. Bethke noted that it was difficult to distinguish between dog and wolf bones. Dogs were bred to be burden animals, and sometimes were bred with wolves. Major non-bone artifacts recovered included historic items (metal, glass and building material) as well as prehistoric items (charcoal, fire stones, lithics and Iniskim). Taphonomic data indicated that the bone assemblage had low environmental modification. It was well preserved with low evidence of animal gnawing, weathering or burning. Evidence of human modification was found on two bison bones in the form of an awl made from a first phalanx and a scraper made from a metatarsal. Some bones did display some polishing. The percentage of Minimal Animal Units (MAU%) was used to examine the frequency of various bison bones. All elements of bison were found to be present. However, the appendicular part of the skeleton was the most common in the assemblage. The least common bones were the horn cone, lumbar vertebrae, sacrum and ribs. Highly fragmented bones and unidentifiable bones were weighed. Damage patterns of butchering marks were found on sixty-nine bones. Cut marks ranged from one to fourteen per specimen. Majority of the bones with cuts came from the appendicular skeleton, and represented primary processing of hide, sinew and meat.

Bison and other Artiodactyla bones were examined for dynamic impact scars, which indicate the purposeful breakage of a bone during processing. The majority of bone fragments were from long bones and metapodial. Femur bones often were broken up for bone marrow removal, and later used for bone grease rendering. Femurs and metapodial bones have high marrow content. Fragmented bone was counted, weighed, and separated into scaled sizes between 2 to 10 centimeters, at 1-centimeter increments. Most of the bone fragments were 3 centimeters or less. Experimental archaeology has found that efficient grease extraction occurs when bone fragments are 5 centimeters or less. The bones were examined to determine if fragmentation occurred due to human activity or environmental post-deposition. A total of 730 bone fragments showed spiral conical fragmentation indicative of fresh breakage during purposeful breakdown of the bone. The presence of spongey bone and hearths may indicate that extraction was likely occurring at the site. Thirteen jaw bones were also examined. Most of the teeth showed winter eruption. A smaller number of jaws showed possible warm weather eruption present.

The zooarchaeological data showed Precontact seasonal land use by the Blackfeet, which began with hunting and expanded over time to include processing of tongue, fat, marrow and bone grease. This is similar to other Blackfeet sites during the Precontact Period. The presence of multi-component kill and processing sites, along with landscape engineering, reflect a long-term investment in repeated hunting within a structured territorial network. The land

continued to be important to the Blackfeet as a kill and processing site during post-contact times. During the early 20th Century, the land was incorporated into the Blackfeet Reservation and a boarding school campus was established. During this time, cattle were raised on-site to feed staff and students due to beef rationing for the reservation. Male students were trained to raise and butcher the cattle. The cattle bones encountered represented six cuts of meat. They were archaeologically distinguishable from Precontact bison bones by the presence of metal mechanical saw marks which produced radial striations and staining. There was also evidence of continued hunting of deer and elk on the land with the presence of metal staining on their bones. It was not clear who was hunting (school vs local residents), but it became an important activity for the Blackfeet during this period.

Bethke concluded her presentation by noting that archaeological evidence from the area demonstrated a long history of occupation by the Blackfeet. Later, the bison hunting landscape was transformed by colonizers to assimilate the Blackfeet to an agricultural lifestyle. However, evidence of resistance was present in the form of continued game hunting. Craig Dengel thanked Bethke for an interesting presentation. Bethke took several questions from the audience. No recording was made of this presentation. However, Brandi Bethke was kind enough to forward a book chapter pdf related to the site excavations.[3] The pdf was distributed to membership by email.

Please note: A recording of the September 13th General Meeting presentation by Kim Munro and Mark Korbitz is available only via this private link - https://youtu.be/GQ5HDJYMmdY

The General Meeting adjourned at 8:12 pm. Submitted by Stacy Greenwood, Secretary for DC-CAS.

1. Kehoe, Thomas F. 1967. The Boarding School Bison Drive Site. Plains Archaeologist Memoir 4:12-35.

2. Bethke, Brandi. 2016. Analysis of Vertebrate Faunal Remains from the 2013 Excavations of the Cut Bank Boarding School, Site 24GL302, Blackfeet Indian Reservation, Glacier County, Montana. Bureau of Applied Research in Anthropology, School of Anthropology, University of Arizona.

3. White, William A. and Brandi Bethke. 2019. Landscapes of Resilience at the Blackfeet Boarding School, Montana. In The Sound of Silence: Indigenous Perspectives on Historical Archaeology of Colonialism, edited by Tiina Äikäs and Anna-Kaisa Salmi. Berghahn Books, Oxford.

DC-CAS NOVEMBER 15, 2021 GENERAL MEETING MINUTES

The DC-CAS November General Meeting was held online on Monday, November 15, 2021 at 7:00 pm via the Zoom platform. Craig Dengel opened the meeting and turned the floor over to Stacy Greenwood for announcements. Stacy announced that elections for the 2022 Board was to be held after the evening's speaker had finished his talk. She also requested any members interested in presenting at the December 13th Members Night to contact her. Lastly, Stacy notified membership that the Board had approved to send out to members a draft of bylaw revisions suggested by Amy Gillaspie. The recommended revisions pertain to updating bylaw language, and do not alter the bylaws in any substantial manner. A vote by membership to accept the suggested bylaw revisions has been tentatively scheduled for the January 10th General Meeting.

Craig introduced the evening's speaker, Thad Swan, lead archaeologist for Sol Solutions, LLC in Fort Collins. The title of Swan's talk was, Owens Cache and 5BN156: A Tale of Two Caches in Southeastern Colorado. The Owens Cache site is located on the Piñon Canyon Maneuver Site on the western slope of Taylor Canyon, a side canyon along the Purgatorie River. The site was discovered in 2010, and was the subject of Swan's 2019 Masters thesis.[1] The Purgatorie River runs through the Pickett Wire Canyonlands, and confluences to the north with the Arkansas River at John Martin Reservoir. The 5BN156 Site is located just east of John Martin Reservoir, on the northern shore of the Arkansas River. It was recorded in 1980 by Science Applications, Inc. (Boulder) as part of the John Martin Reservoir Project.[2]

Swan's discussion began with his work at the Owens Cache Site. He noted the unique collection of projectile points were recovered on the ground just below a structural terrace. Erosion of the sandstone and shale bedding below the terrace created a natural opening in which to store the tool cache. Swan noted that the collapse and downward displacement of a number of sandstone blocks had likely exposed a portion of the cache, indicating a portion of the cache could be still intact. An intact cache in Colorado is rare. Jason M. Labelle noted a survey of Colorado records indicated thirty-seven caches had been discovered, five of which could be confidently dated by way of associated organics.[3] In comparison, Texas has identified hundreds of caches sites. In 2010, Swan carried out a bisecting trench excavation to search for an intact portion of the cache. He recovered eight artifacts, three of which were recovered in situ. The group was comprised of three flakes, two disto-lateral scrapers, two bifaces, and one side scraper. The two bifaces exhibited an overshot reduction technique, a reduction strategy not usually seen in Piñon Canyon or southeastern Colorado. Lithic surface finds were predominately Alibates along with Agatized Dolomites (aka Alibates Chert). Niobara Jasper, an exotic material in the cache, was also recovered. In addition to artifact recovery, Swan wished to reconstruct the depositional history of the landscape features from a geomorphological perspective. He noted there had not been much soil development. The deposit was shallow and had entisols[4] with AC Horizons. Despite this, there still was an intact portion of the cache under the sandstone ledge overhang. Swan collected sediment samples immediately below the ledge overhang after recording their spatial relationship to the artifacts in hopes of obtaining dates. Two samples were sent to PaleoResearch Institute in Golden for analysis. One sample

contained charcoal fragments identified as conifer and juniper designated for AMS dating. The charcoal sample was obtained from within and below the artifact level. The second sample was bulk soil sent for macro floral analysis. The three in situ artifacts were also sent in for protein residue analysis. The charcoal sample produced two dates of 313±21 rcybp (uncalibrated) and 318±21 rcybp (uncalibrated). These dates fell within the Proto Historic Period. The first in situ artifact analyzed for residue was a long multi-use flake, with a lipped platform, made from Alibates Chert. The flake may have been a biface thinning flake. It had been modified and retouched on both sides. No residue was present on the flake. The second in situ artifact was a blade-like flake/scraper, with steep dorsal retouching on both edges, and contained traits for Alibates. This artifact tested positive for Canidae protein residue (possibly fox, wolf, coyote or domestic dog). The third in situ artifact was a side scraper of dendritic chert. The dendritic chert may be an exotic as no local source was known. The side scraper exhibited highly patterned flake scarring on both lateral edges, indicative of repeated sharpening. Analysis produced a positive result for Cervidae protein residue (possibly elk, deer or moose). However, a control soil sample from under the artifact also tested positive for Cervidae, thereby indicating its presence could be natural. However, Swan suggested that positive result could be from a deteriorated hide pouch which may have contained the tool cache. Water screening analysis of soil recovered an additional twenty-three micro debitage flakes, thirteen of which were minute retouch flakes. This would indicate sharpening/resharpening activities took place in the area. A claystone fragment was also recovered. Although it showed no cultural modification, the claystone fragments may have been a manuport as no local source was known. The water-screened flake debitage also included some lithic materials locally available in Piñon Canyon. This may indicate that additional materials are yet to be found or may have been discarded nearby. It should be also noted that a possible marker stone was located on top of the ledge. The stone exhibits continuous flaking along its edges.

With respect to geomorphological reconstruction, the presence of cryptobiotic (or biological) crust fragments in a ten-centimeter interval within Unit Two provided evidence of the ledge collapse and boulder displacement. The presence of the cryptobiotic fragments coincided with a dramatic increase in rock fragments. The flake debitage recovered from water screening was also found within the same ten-centimeter interval in Unit Two. Cryptobiotic crust is a ground phenomenon not found in buried contexts. It forms under stable soil conditions to provide cohesive solid surface, a protective layer against water infiltration, and provides a sticky surface for aeolian deposits.[5] Therefore, the cryptobiotic crust was originally located on the once-stable ledge top, as were the debitage flakes. Swan noted that the cryptobiotic crust can significantly increase moisture retention. Studies have shown that water retention can increase bedrock weather up to one hundred times quicker than normal. Therefore, it is possible that bedrock weathering may have also contributed to the ledge's collapse. Lastly, the location of the lithic cache was near water sources as well as diverse plant and animal resources. Although Piñon Canyon contained a lot of lithic materials, it was not of high quality. Therefore, it would have been advantageous to bring better lithic materials in from elsewhere and to cache them.

Next, Swan discussed his preliminary re-examination of lithic artifacts from the 5BN156 Site, which currently is underwater. The total site area measured five meters by five meters. Twenty-eight artifacts were recovered by Science Application, Inc., and are currently stored at Trinidad State Junior College. Seventeen of these artifacts were recovered from a bedrock outcrop which measured one meter by one meter. The remaining artifacts were recovered nearby the one meter by one meter area. The collection included one side scraper, one disto-lateral scraper, one biface, nine flaking tools (four multi-functional) and six pieces of debitage. The biface was fragmented without its base and displayed use wear. There was tight flake scarring and it was in the late stages of reduction. One flaking tool was a long, wide biface thinning flake which exhibited possible overshot reduction. Heavy retouching along one lateral edge made it difficult to be confidence of the reduction technique. One multi-use flake tool was bifacial with one end reworked into a drill. All of the above artifacts were visually identified as Alibates. There was also a Quartz cobblestone, which may have been a hammerstone. An Obsidian tool was also recovered and identified as a knife by Science Application, Inc. Unfortunately, the tool went missing from the collection before it could be sourced or dated using obsidian hydration. An additional eight artifacts were recorded but not collected from the site. This group included three core fragments (Chert and Basalt), one Quartzite biface, and four debitage pieces (two Basalt/one Quartz/one Alibates). Swan noted the exotic lithic materials were predominately Alibates with the exception of one Obsidian tool. Non-exotic lithic materials were locally available and of low quality. When comparing the Owens Site to the 5BN156 Site, Swan noted that there were similarities and differences. Both sites contained exotic materials dominated by Alibates and Agatized Dolomite (Alibates Chert). While the Owens Site had Niobara Jasper and Dendritic Chert, the 5BN156 Site had Obsidian from an unknown source. The presence of multiple exotics possibly indicated the repeated replenishing of materials over time. Tools made from local lithic materials suggested the people using the caches were both familiar with local resources, but also cached high quality materials. Both caches contained high quality, multi-functional tools with low raw material flexibility. As such, the caches could be considered to function as insurance caches which were periodically replenished over time. A difference between the two sites related to lithic reduction. Blade-like flakes and a biface reflecting overshot reduction technique are found at the Owens Site. However, no clear evidence of this reduction technique was found at the 5BN156 Site. Despite their similarities, Swan was not sure if both sites were used at the same time by the same people. Although he was able to determine a Proto Historic date for the Owens site, no date

had been determined for the 5BN156 Site. In conclusion, Swan hoped to return to the 5BN156 Site to see if additional artifacts have been exposed since the site was surveyed forty years ago.

Swan answered several questions from the audience. Craig thanked him for an informative talk and turned the floor over to Stacy Greenwood to conduct the election for the 2022 Board. Stacy read the slate of candidates and introduced them to the audience. A vote was held and the Board candidate slate was accepted. Stacy welcomed the new Board members. She also reminded everyone the December 14th Members Night would be held virtually on Zoom at 7:00 pm. Craig also reminded Board members of the upcoming Annual Board Dinner on December 6th. He would be sending out information to Board members.

The meeting adjourned at 8:04 pm. Submitted by Stacy Greenwood, Secretary for DC-CAS.

1. Swan, Thaddeus. Masters Thesis: Examination of the Owens Cache in Southeastern Colorado. Department of Geography and Environmental Studies, University of Colorado – Colorado Springs, 2019.

2. Eddy, Frank W. The Cultural Resource Inventory of the John Martin Dam and Reservoir, Bent County, Colorado. The Corp, 1984. Pdf version available (see book pages 168-169 for 5BN156 Site) - https://www.google.com/books/edition/The_Cultural_Resource_Inventory_of_the_J/b3K3RMyFm4sC?hl=en&gbpv=0

3. LaBelle, Jason M. An Introduction to the Lithic Caches of Colorado in Southwestern Lore, Volume 81, Numbers 2 and 3, Summer/Fall 2015, The Lithic Caches of Colorado, Jason M. LaBelle and Christopher M. Johnston, editors. Colorado Archaeological Society, publishers. https://www.academia.edu/19655900/The_Lithic_Caches_of_Colorado_2015_edited_by_Jason_M_LaBelle_and_Christopher_M_Johnston_

4. Entisol are soils defined by the absence or near absence of horizons (layers) that clearly reflect soil-forming processes - https://www.britannica.com/science/Entisol

5. Aeolian deposits are the result of wind activity which erode, transport and deposit sediment grains - https://geo.libretexts.org/Courses/University_of_California_Davis/GEL_109%3A_Sediments_and_Strata_(Sumner)/08%3A_Old_or_Lost_Pages/8.03%3A_Beaches/8.3.1.3%3A_Salmon_Creek_Beach/8.3.1.3.01%3A_Aeolian_Processes

DC-CAS DECEMBER 13, 2021 MEMBERS NIGHT MEETING MINUTES

The DC-CAS December Members Night Meeting was held online on Monday, December 13, 2021 at 7:00 pm via the Zoom platform. Craig Dengel opened the meeting with an announcement that Carol Beam, Cultural Resource Specialist for Boulder County Parks and Open Space would be the guest speaker for the January 10th General Meeting. Stacy Greenwood announced the vote to accept the recommended bylaw revisions was rescheduled for the February 14th General Meeting. Next, Craig introduced the evening's speakers Josef Garrett, Amy Gillaspie and Stacy Greenwood.

Josef Garrett was the first speaker. The topic of his presentation was the use of photogrammetry in archaeology. Garrett defined photogrammetry as a process of taking two-dimensional (2-D) photographs of an object, and putting the photographs into a specialized computer software program to create a three-dimensional (3-D) model. The resulting 3-D computer model can then be stored in a virtual landscape. An example shown of a 3-D computer model was of a Ute ceramic pot placed upon a small woven rug. Inside the pot was a sage bundle and feathers with dried tree leaves positioned around the pot's exterior. Garrett manipulated the image to provide a 360° view of the items to demonstrate the depth and detail recorded within the 3-D computer model. He noted that while photographs and drawings remain important in documenting archaeological sites and artifacts, photogrammetry has value in the added information that it can provide to researchers. Photogrammetry could be used to monitor conditions of a structure or artifact over time by comparing it to earlier 3-D computer models. For example, Garrett showed a 3-D computer model of a historic structure which could be viewed from all sides, and demonstrated how its features could be enlarged to provide greater detail. Photogrammetry can also create a cohesive record. Garrett provided a 3-D computer model of an excavation test pit in which detailed information about excavation levels, soil types and in situ artifacts were recorded. An additional benefit of using a 3-D computer model is that it can be readily shared with others. As an example, Garrett showed a 3-D computer model of a lithic he had photographed. He noted that 3-D computer models could be used in cases where original artifacts cannot be safely handled. Alternatively, a 3-D replica of the artifact could be created by uploading the data to a 3-D printer.

Another application for photogrammetry is to use it with drones to create a 3-D record of an archaeological site. In addition to creating a record of a site, 3-D computer models can provide a detailed look at the surrounding environment. Garrett provided an example of drone work conducted at a rock shelter located on Cherokee Ranch, Douglas County. He noted a few problems he experienced. If a project takes a prolonged time to complete, there may be environmental changes, such as changes in foliage color, which cannot be corrected. Sometimes there are problems with blurred images due to wind. However, if the environment is stable, one can achieve good detail. The quality of the 3-D computer model may also be affected by the number of photos used to create the finished image. A high number of photographs will produce a high-quality model. Finer image details and color variation can also be accomplished by taking overlapping photographs. One can also photograph along a horizontal plane or in three or four different vertical layers taken at different angles. A nice feature of photogrammetry software programs is its ability to display the location and direction of each photograph taken within vertical and horizontal space. One can focus upon a feature and photograph it in three or four different layers from different angles.

The equipment used in photogrammetry is relatively inexpensive and simple to use. Photographs can be taken with a digital camera or cellphone camera. In recent years, drones have become more affordable. Software programs used to convert the 2-D photographs into a 3-D computer model are readily available. Some programs, such as Meshroom, are free shareware which are constantly updated, and are not limited to the number of photos which can be uploaded. The only limitation to using these types of software programs is the computer used to process the data. The computer must have the ability to run the 3-D program software without difficulty. It usually takes a couple of hours to process the data. Paid services such as Autodesk ReCap Photo are a good alternative to using one's own computer. After the digital 2-D images are uploaded to the site server, a 3-D computer model is typically returned within one hour. In conclusion, Garrett noted that photogrammetry is an excellent way to make a permanent record of sites and artifacts in a 3-D computer model. It is inexpensive with a short learning curve. It's also a great tool to explore the possibilities for recording data. There was also the potential for sharing 3-D computer models through a more in-depth and dynamic virtual reality program.

The second speaker for the evening was Amy Gillaspie. The topic of her presentation was her four-week excavation experience in France during August 2021. Gillaspie noted that as the investigation was still open, there were some details that she was not able to share with the public at this time. The excavation was coordinated by the Defense POW/MIA Accounting Agency (DPAA) in association with the Center for Environmental Management of Military Lands (CEMML), part of Colorado State University. The mission of the DPAA is to recover soldiers lost during wartime. An excavation team was formed to undertake investigations of a B-17 bomber crash site in France. The Advance Team that went in early was comprised of co-leaders Ray Sumner (Logistics Lead) and Dr. Michele Koons (Science Lead), Dr. Erin Baxter (Science Support), Bobby Kaplan (Crew Chief), and Amy Gillaspie (Crew Chief). A metal detecting team, who work with Sumner at Julesburg, was also brought in from Colorado along with student volunteers from Colorado State University (CSU) to work the excavation. The plane was part of a squadron of just over fifty B-17 bombers which flew from England to target a German rocket launch site. The plane was struck by anti-aircraft fire and crashed. Nine crew members survived after bailing out of the plane. According to the eyewitness accounts from surviving crew members, the pilot went down with the plane. He was last seen inside the plane by the final crew member to leave the plane. The DPAA had been approached by the pilot's family to find his remains.

The Advance Team had many tasks, some of which were to look for evidence of the plane exploding and to recover any serial numbers from the plane. They also worked to locate the pilot's remains in the form of osteological material or personal items that would have been on the body such as a parachute, helmet, or oxygen mask. The team's goal was to open ten four-by-four-meter units within thirty days. Four-by-four-meter excavation units are the standard size used by the DPAA. Yet, the weather was unseasonably wet early on, which prevented the harvesting of crops in the field where work was to take place. The Advance Team was given permission by the landowner to remove small sections of crops from the areas to be excavated. As it became apparent that weather delays and ground conditions would necessitate a change in the original plans, a mechanical excavator and additional workers were brought in to expedite work. The soil removed by the excavator was controlled by keeping soil units on separate plastic tarps. Each soil unit was then systematically screened by volunteers made up of Sumner's students from Colorado State University, CEMML (Center for Environmental Management of Military Lands), and the University of Colorado-Colorado Springs, in addition to French volunteers organized by an American ex-pat through the American Legion. The excavation was carried out in two-by-two-meter quadrants. If any osteological remains were encountered, the grid would be expanded. In total seven four-by-four-meter units and one two-by-two-meter unit were completed. The DPAA was satisfied with the results considering the weather delays and ground conditions.

Although Gillaspie could not share much with respect to what was found, she did provide a video by Dr. Erin Baxter and approved by Ray Sumner which offered an excellent look at the work carried out at the site. The video also clearly showed aerial views of heavy bomb scarring which remains on the landscape today. Although the area had been metal detected in the past, additional metal items were recovered and their locations geo-spatially marked. Munitions were encountered and a specialized police team visited the site to assist with disposal. Also, a Belgian team brought in innovative geophysical equipment which was able to detect metal and bone. The Advance Team also had the opportunity to speak to residents regarding finds they had encountered while living in the area or working on their land. At the end of the project, the excavation units were backfilled by the excavator. Some items recovered were sent to the DPAA Lab in Honolulu for identification and verification. Several historic items such as lithics and ceramics were also recovered but were not collected. Gillaspie concluded her talk by noting that at any one time many missions are actively being carried out by the DPAA. These missions include all levels of work from research to fieldwork to follow-up and analysis. She invited the audience to check out the DPAA's website at https://www.dpaa.mil/.

The final speaker for the evening was Stacy Greenwood. The topic of her presentation was recently digitized slides held in the Chapter's archive. Forty-four glass slides and three cardboard-mounted slides documented Denver CAS field trips from 1952 to 1958, with most images being from 1952 and 1953. They had been donated to the archive by an unidentified member. Original notations on the glass slides provided the year and a brief description. Only in a few instances was the name of sites and participants indicated. Where possible, Greenwood tried to identify possible site names and participants. In 1952, Denver CAS

members visited blowouts in Yuma County which Greenwood identified as the Wray Dune Fields. Leading the group was David M. Gates, Professor of Physics at University of Denver. Participating Denver CAS members included Henry Irwin and his sister, Cynthia Irwin-Williams . One slide showed a number of projectile points collected. The members also visited an unidentified buffalo kill site near Fort Collins and the Lindenmeier site, both located in Larimer County. Denver CAS members also traveled to Otero County to visit an Apishapa Phase site tentatively identified by Greenwood as the Cramer site or the Snake Blakeslee site . Amongst the people pictured visiting the site were Haldon McNair Chase and Omer Call Stewart. Chase had excavated both the Cramer and Snake Blakeslee sites, and was on faculty at Trinidad State Junior College at the time. Omer Call Stewart was a Cultural Anthropologist at University of Colorado. He was also a Denver CAS member and served on the State CAS Board. The group also visited an unidentified petroglyph site located on Apishapa Creek.

In 1953, Denver CAS members returned to the Wray Dune Fields in Yuma County to visit a blowout notated as Blowhole #64 . The visit was led by Herbert William Dick, Curator of Archaeology, University of Colorado Museum. Herbert William Dick also led a field trip to a pit house site and a rock shelter site near Limon, Lincoln County. Greenwood tentatively identified the sites as Cedar Point Village and Smiley Rock Shelter located in nearby Elbert County. The remaining slides were of various field trips. Three slides were taken during a 1954 trip to Chimney Rock National Monument and the Southern Ute Reservation in La Plata County. Additional slides documented visits to a Sopris Phase site in Las Animas County (1955), a trapper fort site in Montrose County (1957) and Agate Bluff in Weld County (1958). Agate Bluff was excavated by Denver CAS members, Henry Irwin and Cynthia Irwin-Williams. Another 1958 slide showed Denver CAS members visiting the Lincoln County ranch of member, Jerry Chubbuck of Olsen-Chubbuck site fame. Pictured in the slide was Olsen-Chubbuck excavator, Jo Ben Wheat, then Curator of Archaeology at University of Colorado Museum. Other slides shown, but not discussed, were of a tree at Medicine Bow, Wyoming (1950), a group camp at Dale Creek outside Laramie, Wyoming (1953) and an image of North Park wickiups (1954). Greenwood concluded her presentation by noting the Denver Chapter had a rich history. Work was currently underway to digitize the entire archive. It was hoped that similar trips into the archives would be a regular feature in the APB newsletter. She also asked for those who may recognize places or people in the slides to please contact her.

A recording of the Garrett and Greenwood presentations is available on YouTube - https://youtu.be/AUhZK28sDAA. Gillaspie's presentation was not recorded.

A recording is also available for the November 15th General Meeting presentation by Thad Swan - https://youtu.be/cFDUheBmyeI.

The meeting adjourned at 8:38 pm. Submitted by Stacy Greenwood, Secretary for DC-CAS.

DC-CAS BOARD MEETING MINUTES AND FINANCIAL STATEMENTS:

Please note that the monthly Board Meeting Minutes and the quarterly Financial Statements will no longer be published in the All Points Bulletin. These documents are available to all Chapter members upon request. Please contact us should you wish to view them.

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Suggestions for book reviews should be sent to the editor. Books for review should be sent to:
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