

# ALL POINTS BULLETIN



Make friends with... ..the past, through the....

## 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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Volume 54, No 12

December, 2016

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### NEWGRANGE

#### A 5,200 YEAR OLD GIFT FROM THE IRISH STONE AGE PEOPLE

**Jack C. Warner**

On a hill overlooking the beautiful, fertile valley of the River Boyne in County Meath, Ireland, stands the giant white quartz jewel of an archaeological site we now call Newgrange.



farm road

Newgrange from the nearby

As you approach the Newgrange site with the park guide, its immensity and beauty becomes clear.



**Newgrange from the ranger's station**

Legend has it that Newgrange is the home of the god Dagda of the Neolithic Irish (5,200-4,700 BP), and his wife Boann. It is also said that the ancient Irish High Kings of Tara were buried here. Today, New Age spiritualists have other interpretations and rituals. Newgrange is part of a larger Irish National Park called Bru' na Bo'inne that preserves several ancient sites, including the Dowth and Knowth Neolithic passage tombs, and is a UNESCO World Heritage Park.

Several scientific archaeological excavations and studies have been done on Newgrange since the site was acquired by the Irish government in 1962. The main work was led by Professor Michael J. O'Kelly of University College Cork, Ireland. However, much of the site remains unexcavated. The work has uncovered the following points of interest:

- Newgrange was built by Neolithic, New Stone Age, farmers and herdsmen, C14 dated at 5,200 BP.
- Newgrange contains a passage and chamber tomb that was built first of great stones and later covered by the large mound, referred to as the cairn, with the brilliant white quartz façade we see today. The perimeter of Newgrange is made of 97 great stones, called kerbstones, in a roughly circular formation, to hold in place the smaller stones and strips of sod (the Irish call these turves) that make up the cairn. Newgrange is 270 meters in circumference, 85 meters in diameter, and 13 meters high. The kerbstones are estimated to weigh 600,000 lbs.
- The cairn is estimated to contain about 400,000,000 lbs of rock. The rock appears to have been quarried close to the River Boyne about 750 meters distant.
- At its construction date of 5,200 years ago, Newgrange was the largest and tallest human made structure in the world. It is 800 years older than Stonehenge in England and 700 years older than the pyramids at Giza, Egypt.
- There are 550 great stones used to construct the kerbstones, passage, and chamber. They weigh between one and ten tons each. Almost all are of a type of slate called greywacke. Some appear to have been quarried locally, but most were quarried as far as 30 km away and probably transported up the River Boyne by boat.
- The white quartz façade is made of stone quarried in the Wicklow Mountains, about 80 km distant.
- An archaeologist has estimated that to build just the cairn from the smaller stones quarried 750 meters away would take 1,826 person-years of effort.
- Rock art petroglyphs are both inside and outside of Newgrange. The dominant pattern is abstract with prominent spiral patterns and lozenges (an Irish term for petroglyphs in the shape of a diamond as in a deck of playing cards). Studies have revealed that the style of megalithic rock art at Newgrange is related to that along the Atlantic Ocean seaboard from Brittany to Wales, Ireland, and on to Scotland's Orkney Islands.

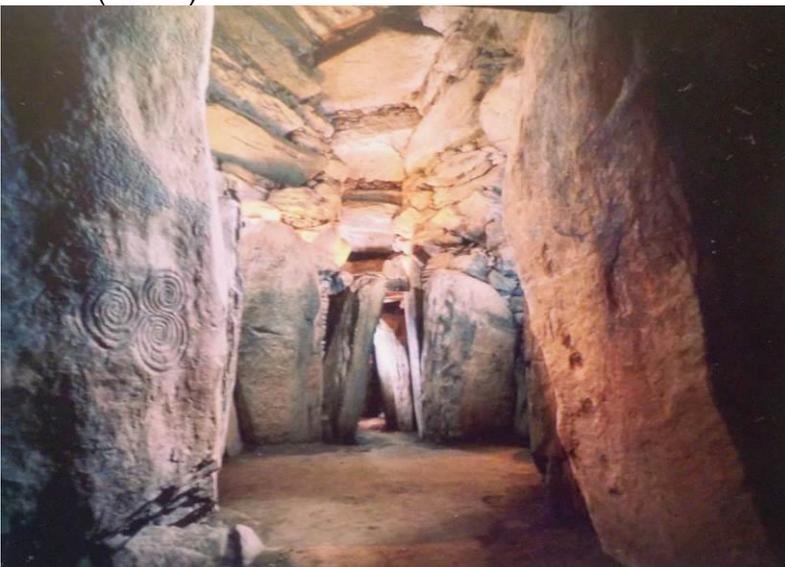
- Newgrange appears to have been used by Neolithic and Early Bronze age people for rituals and elite burial for several hundred years. It was then sealed. Later peoples, called the “Beaker people”, used the area adjacent to the cairn. They built a large wooden circle henge nearby; and then, built a 105-meter diameter stone circle around the Newgrange cairn. These structures are evidence of a change in religious ritual. By 4,000 years ago the Newgrange area was abandoned. It does not appear that anyone entered the passage until 300 years ago, when an Irish farm crew, digging for construction stone, rediscovered it. Since then, various antiquarians, vandals, and archaeologists visited it.
- Even for the roughly 3,700 years that we know Newgrange was sealed, it appears that the location was a pilgrimage site and a spiritual center—as it still is. Among the artifacts that have been found are valuable third and fourth century AD Roman gold coins and jewelry that appear to have been left by visitors as offerings. It is also unusual that no person ever built anything on the Newgrange cairn.
- A large stone, heavily decorated with an abstract triple spiral design petroglyph, marks the entrance to the passage. Exactly on the opposite of the cairn is another highly decorated stone, in a similar style, thought to be a symbolic exit.



**The entrance to the Newgrange passage with the**

**highly decorated entrance stone**

- The passage has a low ceiling and is very narrow in spots. It is 18.8 meters long. At the end of the passage is a chamber with a towering roof and three side recesses. The whole area is covered with abstract petroglyphs, including a triple spiral that is called by experts, “the finest piece of megalithic art in Europe” (REF 1).



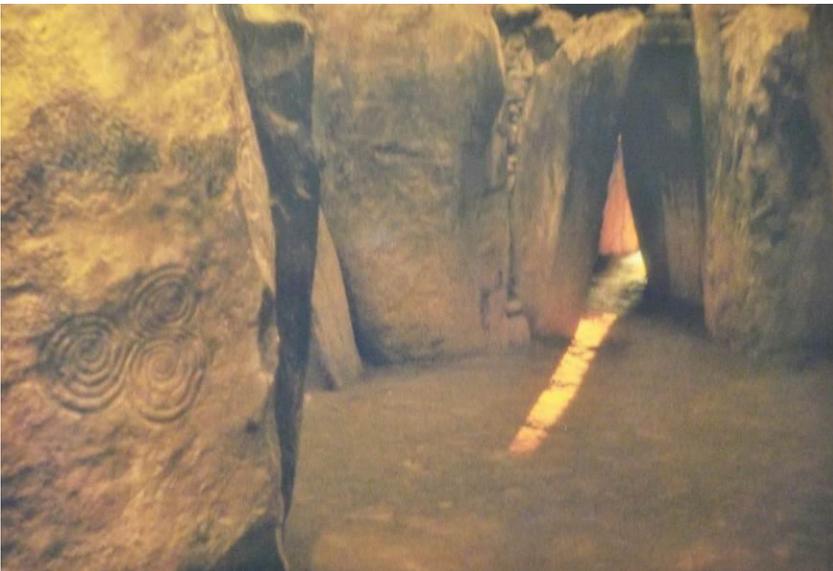
**The Newgrange passage looking back from the main chamber with the famous triple spiral petroglyph in view on the left**

- The main chamber is a most impressive construction. After a very tight squeeze thru the passage, you emerge into a big oval area that measures 15 meters by 8 meters. It held the 20 people on our ranger-guided visit. The eye is drawn to the corbel roof that towers over 6 meters above the chamber floor. A single large stone caps the roof. The roof is watertight as it has been for 5,000 years!



**The roof over Newgrange's main chamber. It uses corbel style construction.**

- There are three smaller recesses off the main chamber. Human remains of five people, both cremated and not, were found in the chamber and recess areas. Items that appear to be ritual in nature were also found. There are four large stone basins in the recesses that are believed to have once contained the remains of burials.
- Professor Kelley discovered an important solar phenomenon on December 21, 1967. When standing in the main chamber without artificial light, the chamber is pitch black, like being in a natural cave. At sunrise on this day, the winter solstice, a shaft of light proceeds up the passage, across the chamber floor, and lights the far wall of the central recess. It then retreats back across the floor, until all is dark again. The phenomenon lasts about 17 minutes on the solstice day. It also occurs to a lesser extent on days near the solstice day.
- At 5,200 years old, Newgrange is one of the oldest structures ever found in the world that is aligned to astronomical events.



**On the summer solstice, a shaft of sun enters the main chamber area of Newgrange**

- After this solar phenomenon was observed, a careful study was made as to how the Neolithic builders achieved this dramatic effect. It was found:
  - The passage has been carefully aligned to the spot on the horizon that the sun raises on the shortest day of the year.
  - The passage is deliberately not straight, so light does not enter the chamber normally, and it remains black.
  - A special roof box was designed and built to let the sunlight enter the passage at sunrise on the winter solstice.
  - The floor of the passage is designed so it goes uphill. At the chamber, the floor is the same altitude as the roof box. So, on the winter solstice, light can go in a straight line from the roof box, down the passage, and on the floor of the chamber and far recess wall.

As part of the visitor's experience, the ranger guide turns off all the electric lights in the chamber and passage. One is in total darkness as if one is in a different world. You can see no evidence of your hand even as you touch your face. The modern visitor is standing as the Neolithic visitor did thousands of years ago. The Newgrange guide then activates an electric simulator of the winter solstice event. A dim light appears down the passages and a tongue of light enters the passage floor. The light grows as it slowly creeps across the entire passage floor. The rock art petroglyphs become dimly visible. The light climaxes as it lights the rock art in the far recess wall. It then retreats. This most impressive simulation stirs not just the visual senses. It stirs the soul.

I am an engineer by training and practiced an engineering related profession for 42 years. I am totally amazed at the sophisticated level of engineering and art that went into the construction of Newgrange and its imbedded solar observatory by Stone Age Neolithic people 5,200 years ago. Newgrange is a testimony that ancient people were much more sophisticated and capable than our age gives them credit for.



The amazed author (waving) departs the passage at Newgrange as other visitors wait their turn.

### REFERENCES

All photos were taken by Jack and Mary Warner; however, visitor photos are not allowed inside Newgrange. The inside images shown here are my photos of post cards purchased at the Newgrange ranger station and copyrighted by the Irish Department of Arts, Heritage and the Gaeltacht.

1. **NEWGRANGE**, Geraldine Stout and Matthew Stout, Cork University Press, 2008
2. **NEWGRANGE and Bro' na Bo'inne**, Paul Francis, Charial Publishing, 2014
3. **Newgrange**, wikipedia.org, 9/30/2016
4. **Skara Brae, The Orkney Islands, Scotland**, Rosalie and Jack Hewins, All Points Bulletin, Colorado Archaeological Society, Denver Chapter, 2013
5. Bru' na Bo'inne ranger tour guide 10/26/2016

**DENVER CHAPTER – COLORADO ARCHAEOLOGY SOCIETY  
AND  
DENVER SOCIETY, ARCHAEOLOGICAL INSTITUTE OF  
AMERICA**

**MEMBERS NIGHT**

**7 PM, DECEMBER 12, 2016**

**LOCATION: AURARIA CAMPUS, CHERRY CREEK BUILDING ROOM 241  
DR. JON KENT'S LABORATORY**

**MEETING SPEAKERS**

**JON KENT & REID FARMER**

***CHEROKEE RANCH FIELDWORK***

**JACK WARNER**

***COZUMEL MEXICO'S CHANKANAAB***

**REID FARMER**

***OLDUVAI GORGE***

**CASHEL MCGLOIN**

***EMPORION PISTIROS IN BULGARIA***

**Feel free to bring potluck items to share during this holiday event.**

**The Members Night Meeting is at Jon Kent's Lab, room 241, Cherry Creek Building, Auraria Campus. (NOTE - This is a different venue from the Denver University location used for Members Night for many years in the past.)**

**DIRECTIONS: If driving, head Southbound on Speer Blvd from the intersection of Arapahoe and Speer. Stay in the right lane. Look for a modest little street named Champa that goes into campus. (NOTE this is NOT the street continuation of Champa coming through downtown.) Turn right onto Champa. In about a half block turn right into the Nutmeg Parking Lot. Park, pay at the parking station after entering your car license. The fee is \$6.25.**

**Proceed 270 degrees around the traffic circle at the end of Champa to a ramp up to the Cherry Creek Building entrance. In the lobby go left to the elevator. (Restrooms flank the elevator.) Go up to the second floor. Head out of the elevator down a long hallway. Continue past a slight jog to the right in the hallway, go almost to the end of the hallway. The lab doorway is on the left.**

**January Speaker:** Chris Johnston, Assistant State Archaeologist

**Title:** Roberts Buffalo Jump, northern Larimer County, Colorado

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**Minutes of the DC-CAS Board Meeting, November 9, 2016**

The DC-CAS Board Meeting was held at Metro State Cherry Creek Building Room 241 November 9, 2016. Meeting was called to order by Linda Sand. Attending were Linda Sand, Jon Kent, Cashel McGloin, Michelle Giometti, Jack Warner, Teresa Weedin, Reid Farmer, Preston Niesen, Amy Howard, Aaron Theis, Ken Andresen and Kendra Elrod. Vice Pres/Speakers (Jon K) interim Vice President announced the upcoming DC-CAS General Meeting speakers: Linda Scott Cummings will be speaking November 14, and the December meeting will be traditional Members Night with several members giving their own short presentations of their adventures. Chris Johnston will be speaking at the January meeting, Jill Scott is the speaker in February and will talk about her work on the Rising Star Cave Expedition, the March speaker is yet to be determined. Jon K announced he is open to suggestions for future speakers. Through email Aaron T reported he had reached out to AIA to invite them for a joint December meeting.

**Scientific** (Reid F) Reid reported work is currently ongoing at Cherokee Ranch. He would like to expand the Class 3 survey effort next spring/summer.

**Membership** (Cashel M) Cashel reported 3 new members. Michele mentioned one dues check was returned as not accepted.

**CO-CAS** (Teresa W) Teresa reported that the CAS January 2017 quarterly meeting will be in Pueblo.

**PAAC** (Preston N) Preston reported that enough persons signed up for the PAAC class to be held.

**Treasurer** (Michelle G) Michele asked that reimbursement requests be turned in before yearend.

**Trips/Events** (Teresa W) announced there are no upcoming trips planned.

**APB/e-APB Newsletter** (Cashel M & Ken A) Cashel introduced Amy Howard as an assistant in producing the APB. Teresa said the Board Meeting minutes in the November APB should not have shown Aaron as PAAC Coordinator. The position is open and will remain open for an extended time due to no PAAC classes will be held next spring.

**Website** Craig will continue updating the chapter website through December. Cashel and Aaron will take over in January.

**Nominations** Teresa clarified positions for Directors. Reid and Aaron are up for election for the two director positions for 2017. Jon Kent vacated his director position when he filled the Vice President position when Catherine moved to Nebraska. Jack

Warner was appointed to fill Jon's director position. This leaves one of the four director positions unfilled. **New Business** Bill Hammond has requested \$500 to pay for sketches for the Swallow Report. Bill is moving to assisted living and is reducing his workload. Neil Hauser is taking the lead on the Swallow Report.

**2017 CAS Annual Meeting Planning** The Denver Chapter will host the October 13-15, 2017, State CAS Annual Meeting. The venue will be at History Colorado. Reid has volunteered to coordinate field trips. Cashel volunteered to research hotel/motel information. Additional items include finding what the meal prices will be at the History Colorado venue, arranging the silent auction, determining registration details and registration fees. The speakers will be arranged by Bob Rushforth of State CAS. Submitted by Ken Andresen

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**Minutes of the DC-CAS General Meeting, November 14, 2016**

The DC-CAS General Meeting was held at the Denver Museum of Nature and Science's Ricketson Auditorium November 14, 2016. President Linda Sand called the meeting to order at 7:03 PM. She announced that in 2017 there will NOT be emails sent out notifying members when the APB has been placed on the website.

Jon Kent announced the December 12 General Meeting which is Members Night. There will be four short talks. Attendees are encouraged to bring potluck items to share. The location is in Jon's lab, room 241, Cherry Creek Building on the Auraria Campus. He added that the January General Meeting speaker will be Chris Johnston who will talk about Robert's Buffalo Jump.

Jon introduced Dr. Linda Scott Cummings, the evening's speaker. Her background includes archaeological degrees from the University of Colorado and starting a business, the Paleo Research Institute, now in its 44<sup>th</sup> year. She worked with Marie Wormington typing the manuscript for Jo Ben Wheat's report on the Jurgen Site. Linda's Master's advisor was David Breternitz. Her talk 'Paleo Nutrition, Coprolites, Dental Calculus, and the Celtic Curse' is based on her PhD thesis.

Data were obtained from 450 bodies excavated from two Nubian cemeteries along the Nile River. The cemeteries were separated in time by approximately one thousand years. Microscopic examination of the coprolites and dental calculus revealed phytoliths which are formed in plants. These showed a wide variety of food consumption. The grain sorghum was prominent. It is significant in that it inhibits iron uptake. This leads to anemia that limits life expectancy. Fortunately, for society preservation, life expectancy of the anemia victims extended beyond child bearing years but limited life to about fifty years. In contrast to the Nubians, people in Ireland suffered from hereditary hemochromatosis; too much iron. In Ireland 1 in 83 and in Northern Europe 1 in 200 suffered from this.

**Officers and Directors for 2017** Teresa Weedon, Nominating Committee Chair presented the slate of Officers and Directors for 2017. She asked for any additional nominations. There were none. Those present voted to accept the slate as the chapter leaders for 2017 with no votes against. Linda S adjourned the meeting at about 8:38 PM. Submitted by Ken Andresen.

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**Building on the Past: Honoring the Legacy of Colorado's Archaeologists  
A Symposium Celebrating the 25<sup>th</sup> Anniversary of CCPA's Scholarship Program- A Call for Papers**

Help celebrate CCPA's very successful Scholarship Program by participating in this session to honor Colorado's archaeologists. The goal of the symposium is to connect to past research and recognize those archaeologists who laid the foundation for archaeological studies that are being done today. Colorado has a fantastic history of archaeological work. Almost all investigations carried out in the state these days can in one way or another be tied to work accomplished by another Colorado archaeologist, professional or avocational. While past scholarship recipients are encouraged to participate, the symposium is open to all CCPA and CAS members. Presenters should keep in mind that the reported investigation should be tied to fieldwork, research, or other study accomplished by another Colorado archaeologist(s), not necessarily deceased. We ask that the presentations make a direct, explicit link to previous archaeological studies and explain how the research builds upon work accomplished by earlier investigators. It would be particularly apropos for the name of the original researcher(s) to be in the title. It is the hope that the presentations are of sufficient quality that they merit the effort to make them available in one way or another to the entire archaeological community, such as on-line, CD, or printed.

To help in organizing this symposium, we are requesting that those planning to participate send a draft title and draft abstract by **December 12** to Amie Gray ([Amie@akpioneerconsulting.com](mailto:Amie@akpioneerconsulting.com)) and Adrienne Anderson ([archeoanderson@gmail.com](mailto:archeoanderson@gmail.com)). January 31, 2017 is the deadline for final abstracts to be submitted to the Program Committee. If you have questions, please contact Amie or Adrienne. Further information will be disseminated via the CCPA listserver, including paper length.

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**CU Museum Lecture:  
AIA Lecture Series: New Perspectives on Ancient Urbanism**

Although we've always known that cities were one of the most important features of the Greek and Roman world, we've actually had very little idea about basic aspects of the urbanism of the ancient world, such as how many of these settlements there were, where they were distributed and how they changed over time, how large they were, and how many people lived in them compared to villages, hamlets, and farms.

In this talk, CU's own John Hanson will attempt to answer some of these questions, drawing on the new research on ancient urbanism that has been put forward in his forthcoming book, and explore what it can tell us about what it was like to live in the ancient world and how it compared to the medieval and modern world.

Wednesday December 7th, 2016, 7:00 PM  
University of Colorado Museum of Natural History  
(Henderson Building)  
1030 Broadway  
Boulder, CO 80309

**DIRECTIONS TO THE DECEMBER 12 MEETING**  
The Members Night Meeting is at Jon Kent's Lab, room 241, Cherry Creek Building, Auraria Campus. (NOTE - This is a different venue from the Denver University location used for Members Night for many years in the past.)

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**COLORADO ARCHAEOLOGICAL SOCIETY  
DENVER CHAPTER  
Financial Report  
Prepared by Michele Giometti, Treasurer**

**Income Statement  
October 1 – 31, 2016**

**Balance Sheet  
October 1-31, 2016**

**ASSETS**

|   |                         |
|---|-------------------------|
| Current Assets                                |                         |
| Checking/Savings                              |                         |
| Key Bank Checking                             | 1,513.41                |
| 1 <sup>st</sup> Bank CD 182 day 1/3/17 0.05%  | 5,698.08                |
| 1 <sup>st</sup> Bank CD 182 day 4/18/17 0.05% | 4,810.57                |
| 1 <sup>st</sup> Bank CD 1 Yr 2/17/17 0.15%    | <u>5,000.62</u>         |
| Total Checking/Savings                        | <u>17,022.68</u>        |
| <b>TOTAL ASSETS</b>                           | <b><u>17,022.68</u></b> |
| <b>LIABILITIES &amp; EQUITY</b>               |                         |
| Current Liabilities                           |                         |
| State CAS Dues Payable                        | <u>0.00</u>             |
| Total Checking/Savings                        | <u>0.00</u>             |
| Temp. Restricted Net Assets                   |                         |
| Scientific Applications Fund                  | 3,751.91                |
| Swallow Report Project Fund                   | 2,725.81                |
| D Bucknam Memorial Speaker Fund               | 1,747.10                |
| Blackfoot Cave Fund                           | 0.00                    |
| Library Fund                                  | 165.94                  |
| Education Fund                                | 52.40                   |
| Field Trips / Social Fund                     | 483.01                  |
| Student Membership Fund                       | 57.50                   |
| Speakers Meal Fund                            | <u>592.88</u>           |
| Total Temp. Restricted Net Assets             | 9,576.55                |
| General Fund                                  | 7,268.40                |
| General Fund Net Income                       | <u>177.73</u>           |
| Total Equity                                  | <u>17,022.68</u>        |
| <b>TOTAL LIABILITIES &amp; EQUITY</b>         | <b><u>17,022.68</u></b> |

| <b>GENERAL FUND</b>                   | MTD           | YTD           |
|---------------------------------------|---------------|---------------|
| Income                                |               |               |
| Membership Dues                       | 111.00        | 2,941.00      |
| Interest-Savings,                     |               |               |
| Short-Term CD                         | 2.49          | 14.38         |
| Donations Received                    | <u>0.00</u>   | <u>993.00</u> |
| Total Income                          | 0.00          | 3,948.38      |
| Expenses                              |               |               |
| Bank Service Charges                  | 8.00          | 40.00         |
| Dues Paid to State                    | 44.00         | 1,336.00      |
| Quarterly Meeting                     |               |               |
| Host Expense                          |               | 365.00        |
| Supplies                              |               | 74.15         |
| Insurance                             | (30.00)       | 1,015.00      |
| Blackfoot Cave Expenses               |               | 130.00        |
| Transfer to Scientific                |               |               |
| Applications                          | 7.00          | 210.00        |
| DMNS Annual Membership                | <u>600.00</u> | <u>600.00</u> |
| Total Expenses                        | 629.00        | 3,770.65      |
| Net General Fund Income               | (515.51)      | 177.73        |
| <b>Public Education</b>               |               |               |
| Expenses                              |               |               |
| Poster Printing – Blackfoot Cave      |               | <u>129.60</u> |
| Total Expenses                        |               | 129.60        |
| Net Public Education Income (Expense) |               | (129.60)      |
| <b>Scientific Applications Fund</b>   |               |               |
| Income                                |               |               |
| Transfer from General Fund            | 7.00          | 210.00        |
| Donations Received                    |               | <u>130.00</u> |
| Total Income                          | 7.00          | 340.00        |
| Net SAF Income                        | 7.00          | 340.00        |
| <b>Speaker's Meals</b>                |               |               |
| Expenses                              |               |               |
| Speaker's Meals                       | 67.56         | <u>218.74</u> |
| Total Expenses                        | 67.56         | 218.74        |
| Net Speaker's Meals (Expense)         | (67.56)       | (218.74)      |
| <b>Swallow Report Project</b>         |               |               |
| Income                                |               |               |
| Donations Received                    |               | <u>44.00</u>  |
| Total Income                          |               | 44.00         |
| Net Swallow Report Income             |               | 44.00         |
| <b>Library</b>                        |               |               |
| Expenses                              |               |               |
| Supplies                              |               | <u>36.51</u>  |
| Total Expenses                        |               | 36.51         |
| Net Library Expenses                  |               | (36.51)       |
| <b>Blackfoot Cave</b>                 |               |               |
| Expenses                              |               |               |
| Pottery Analysis                      | <u>70.00</u>  | <u>70.00</u>  |
| Total Expenses                        | 70.00         | 70.00         |
| Net Blackfoot Cave Expense            | (70.00)       | (70.00)       |

Denver Chapter  
Colorado Archaeological Society  
P.O. Box 100190  
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