ADDENDUM #1
Parks and Open Space
Master Interpretive Plans - Agricultural Heritage Center, James F. Assay Office Museum, Nederland Mining Museum
RFP # 7335-22

April 19, 2022

The attached addendum supersedes the original Information and Specifications regarding RFP # 7335-22 where it adds to, deletes from, clarifies or otherwise modifies. All other conditions and any previous addendums shall remain unchanged.

Please note: Due to COVID-19, BIDS will only be accepted electronically by emailing purchasing@bouldercounty.org**.**

1. Question: Is the contractor broadly identifying themes, defining interpretive direction, and assessing the physical space and the potential for new stories at these three sites? Or is the expectation that the contractor will write tour language and update existing volunteer handbooks for the sites with the agricultural and mining history of African Americans, Asian Americans, Latinx, Indigenous Peoples, Cornish, Swedish/Scandinavian in Boulder County?

   ANSWER: The Selected Proposer will identify themes and interpretive direction. Tour language can be an outline or summary.

2. Question: To what level are new program ideas developed? Is this largely to provide the themes and storylines or are actual tour scripts an expectation (and if so how many per location and for what audiences)?

   ANSWER: New programming ideas will be an application of the MMIP themes and storylines for programs in addition to tours.

3. Question: Is the bibliography of research resources a compilation of existing research materials within possession of the County, or are you looking for a full review of existing research, where it exists, followed by a summary?

   ANSWER: The bibliography should only include research resources for development of the MMIPs.

4. Question: Can the current volunteer manuals for the Nederland Mining Museum and James F. Assay Office Museum be provided prior to bid to help establish a baseline of current approach and collections?

   ANSWER: Volunteer handbooks for the AHC and mining museums are attached for review by interested Proposers. They are a continuation of the attachments published with the original RFP and are as follows:

   Attachment D AHC Volunteer Handbook
   Attachment E Introduction to Volunteering with CH
   Attachment F NNM AOM Volunteer Handbook
   Attachment G NMM Artifacts

5. Question: Page 2-3, Payment for Services:

   Is this phase of the project fully funded?

   ANSWER: The project outlined in this RFP is funded.

   Can you share the budget for this phase of the project - or at least a ballpark range for the budget for this phase of the project?

   ANSWER: $30,000 is earmarked to fund this project.

   The RFP says “selected Contractor may invoice upon completion and BCPOS approval of the following project milestones:” and then lists three specific milestones including a) site visits/data collection/meetings phase; b) research and writing of MMIP drafts and revisions of MMIP drafts based upon BCPOS feedback; plus c) submission of final MMIPs and MMIP orientation presentations (3 total). Can you confirm that this reference to invoicing by the selected Contractor means that the selected Contractor can submit an invoice upon completion of EACH of the three Project milestones?

   ANSWER: Yes, the selected Proposer may submit an invoice upon completion and approval by BCPOS of each milestone.

6. Question: The Specifications section indicates that the MMIPs should include

"Research and summaries about various ethnic group contributions to local history especially in areas of mining and agriculture." What role do you envision the BCPOS project team - including the museums' staff and volunteers - contributing to the research phase? Are there existing sources of information within the museum collections from which the research effort can draw? Or is the selected Contractor expected to do the research in this area from scratch utilizing non-BCPOS/museum resources? I understand that the BCPOS responsibilities include providing "all available information pertinent to the project…" but can you provide a little more information about what information is "available" and can be expected to be provided by BCPOS, especially as it related to the "Research and summaries" requirement?

ANSWER: The Selected Proposer is expected to do the research utilizing other sources. The BCPOS project team will provide visitor survey reports, volunteer handbooks, and other data at the request of the Contractor. Other data needs will be determined by the Selected Proposer and the BCPOS project team will provide available data. Other sources of information available include an internal research library, oral history collection (shared by the Carnegie Branch Library), and access to artifact and archive collection reports. In regard to the "Research and Summaries" requirement about various ethnic group contributions, BCPOS has very little information available.

7. Question: Can you provide some additional clarification about the SWOT analysis into "staffing sites, programs, and available resources"? Which of the following are you envisioning:
    - a SWOT analysis for each museum for each of these three categories (staffing, programs, resources) = 9 unique SWOT analysis; or
    - a unique SWOT analysis for each category for the AHC plus a unique SWOT analysis for each category for the Mining Museums (combined) = 6 unique SWOT analysis; or
    - one SWOT analysis for each of the three museums that includes all three categories = 3 unique SWOT analysis; or
    - one SWOT analysis for AHC that includes all three categories and one SWOT analysis for the Mining Museums (combined) that includes all three categories = 2 unique SWOT analysis.

    ANSWER: We want a unique SWOT analysis for each category for the AHC plus a unique SWOT analysis for each category for the Mining Museums (combined) = 6 unique SWOT analysis.

8. Question: Sticking with the SWOT requirement, how are you defining "programs"? Does it include on-site exhibits, on-site non-exhibit interpretation including guided tours (including audio tours) and brochures, on-site educational

programs for school groups and teachers, lectures and film series, digital programming?

ANSWER: On-site educational programs.

9. Question: Sticking with the SWOT requirement, how are you defining "available resources"? Are you talking about the resources available to each museum (including budgets) or are you talking about resources the museums make available to their audiences and stakeholders?

   ANSWER: All of these: budget, staffing, and programming available.

10. Question: Can you confirm that we are required to include proof of current insurance with our proposal "in the form of a sample certificate" but we are NOT required to include additional insured status until the time a contract is executed? Does this mean we can submit a certificate of insurance we've recently obtained for a different project (as a sample)?

    ANSWER: Please submit a sample of your current insurance coverage. The selected Proposer will be required to present a certificate of insurance with the insurance coverage and the additional insured language as outlined in the RFP.

11. Question: Please confirm that the "within the last three (3) years" requirement is specific to the references and that the examples of research/writing historical content and the examples of writing master plans are not limited to the last three years.

    ANSWER: That timeframe is applicable to the references only.

12. Question: The timeline seems a little tight- Is there a reason for the deadline?

    ANSWER: Funds for this project are allotted for the 2022 calendar year only.

13. Question: Do you feel that the consultant will need to do exhaustive research of the history (including the various groups they mention)? To that end- do you have internal content experts who can provide insights/direction, or will all research be conducted solely by the consultant? Are there any resources the county will provide?

    ANSWER: BCPOS will provide insight/direction but will not be doing research. The Selected Proposer needs to provide enough research to provide a strong base of information about each area of interest to support the tour outlines, exhibit and signage themes, and new programming ideas per the RFP.

14. Question: The RFP states that the onsite work is to be conducted during the institution's open hours- according to the materials provided, the locations are only open Friday/ Saturday/ Sunday. Should we assume that work will need to occur on the weekends to accommodate those hours or will stakeholders be available during the work week?

    ANSWER: We prefer the Selected Proposer to do on site work during regular days of operations, but other arrangements are possible. Staff may be met with and accessed on other days as well: Cultural History Program Coordinator, Sundays-Thursdays, and Volunteer Coordinator AHC, Tuesday afternoons-Saturdays.

15. Question: The RFP mentions providing new/ updated outlines for the tours- are there outlines available for the current tours?

    ANSWER: Yes, in volunteer handbooks which are provided in this addendum.

16. Question: The request mentions recommendations for graphics. Would you like to see some designed options for graphics?

    ANSWER: Nowhere in the RFP are graphics referred to. Bidders are welcome to include anything in their proposal to demonstrate their capabilities.

17. Question: Regarding the evaluation criteria (P. 15), how does the "Sustainability Questionnaire" fit into the scoring matrix?

    ANSWER: The sustainability questionnaire results will not be incorporated into the evaluation process and does not have any impact on the scoring matrix but must be returned. Please answer the questions to the best of your ability.

18. Question: Regarding the deliverables on pages 9-10, can you provide some additional clarification about the two orientation presentations for volunteers? It appears that you want the selected contractor to share with the volunteers full-realized tours and programs, but we thought the purpose of the MMIP was to present ideas and recommendations based on the SWOT for potential new offerings. It's possible that these orientations are to present the ideas and recommendations to the volunteers and get their feedback, but it would help us greatly if we could get some clarity on this particular deliverable.

    ANSWER: The orientations are to share highlights of the MMIPs with volunteers for those specific museums, not to share tours or programs.

Submittal Instructions:

Submittals are due at the email box only, listed below, for time and date recording on or before **2:00 p.m. Mountain Time on April 26, 2022.**

Please note that email responses to this solicitation are limited to a maximum of 50MB capacity.

NO ZIP FILES OR LINKS TO EXTERNAL SITES WILL BE ACCEPTED. THIS INCLUDES GOOGLE DOCS AND SIMILAR SITES. ALL SUBMITTALS MUST BE RECEIVED AS AN ATTACHMENT (E.G. PDF, WORD, EXCEL).

Electronic submittals must be received in the email box listed below. Submittals sent to any other box will NOT be forwarded or accepted. This email box is only accessed on the due date of your questions or proposals. Please use the Delivery Receipt option to verify receipt of your email. It is the sole responsibility of the proposer to ensure their documents are received before the deadline specified above. Boulder County does not accept responsibility under any circumstance for delayed or failed email or mailed submittals.

Email purchasing@bouldercounty.org; identified as **RFP # 7335-22** in the subject line.

All proposals must be received and time and date recorded at the purchasing email by the above due date and time. Sole responsibility rests with the Offeror to see that their bid is received on time at the stated location(s). Any bid received after due date and time will be returned to the bidder. No exceptions will be made.

The Board of County Commissioners reserve the right to reject any and all bids, to waive any informalities or irregularities therein, and to accept the bid that, in the opinion of the Board, is in the best interest of the Board and of the County of Boulder, State of Colorado.

RECEIPT OF LETTER
ACKNOWLEDGMENT

April 19, 2022

Dear Vendor:

This is an acknowledgment of receipt of Addendum #1 for RFP #7335-22, Master Interpretive Plans - Agricultural Heritage Center, James F. Assay Office Museum, Nederland Mining Museum.

In an effort to keep you informed, we would appreciate your acknowledgment of receipt of the preceding addendum. Please sign this acknowledgment and email it back to purchasing@bouldercounty.org as soon as possible. If you have any questions, or problems with transmittal, please call us at 303-441-3525. This is also an acknowledgement that the vendor understands that **due to COVID-19, BIDS will only be accepted electronically by emailing purchasing@bouldercounty.org.**

Thank you for your cooperation in this matter. This information is time and date sensitive; an immediate response is requested.

Sincerely,

Boulder County Purchasing

Signed by: _____ Date: _____

Name of Company_____

Attachment D

Volunteer Handbook
Agricultural Heritage Center

Updated spring 2022

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Statements of Purpose

- The Agricultural Heritage Center at the Lohr/McIntosh Farm is a Boulder County Parks & Open Space resource that educates the public about the agricultural history of Boulder County. From the late 1800s to the present, this history includes the settlement of its farming families and their communities, the evolution and ecological impacts of truck farming and livestock management practices, and the social, environmental, and economic forces that combined to forge the County's rural landscape. Special interpretive and restoration focus will be given to the site's 1900-1930 history.

- The Agricultural Heritage Center at the Lohr/McIntosh Farm allows Boulder County's residents and visitors to step into the site's preserved landscape and unlock some of the mysteries of the countryside and curiosities of the barnyard, while providing insight into what gives cultural character to the different regions of the County. As today's contemporary generations generally live in urban settings, the site provides them a glimpse of the human and cultural connections with the earth that most of them, especially children, have never or will never experience as part of their daily lives.

- The Agricultural Heritage Center at the Lohr/McIntosh Farm celebrates the successful partnership between Boulder County's civic-minded landowners and the citizens-at-large and their will for proactive open lands acquisition for educational and other constructive uses. Through exhibits and special events, the site emphasizes the importance of sustainable land stewardship not only for the survival of the Boulder and St. Vrain Valley's early pioneers, but for the quality of life for those of us in the 21st Century, for our descendants, and theirs.

The Agricultural Heritage Center

A Brief History of the Boulder County Agricultural Heritage Center

Located at 8348 Ute Highway 66 in Longmont, the site was formerly the family farm of local pioneer George McIntosh. After fighting in the Civil War and running a freighting operation, "Mr. Mac" settled the area, built a log cabin, and started a family with Amanda Jane (Lee) Noble, a recently arrived widow. After the turn of the last century, their daughter Minnie and her husband George Lohr, an early Hygiene Postmaster, took over the farm with their two young sons Neil and Harry. The site gives special focus to the years 1900-1930, when local farming families such as the Lohrs prospered and witnessed the coming of the "modern" age.

As for the site's later history, Neil "Shorty" Lohr farmed here until the 1950s, at which time the Dirks family (who still resides at both western corners of Highway 66 and Airport Road) began their long lease of the site as a milk cattle operation.

Before his death in 1991, Neil "Shorty" Lohr established a trust fund to help create a county-focused educational facility and sold his pioneer family's property to Boulder County Parks and Open Space. Since then, work has proceeded in realizing the educational potential for the site. With the relocation of the Stroh-Dickens barn from a nearby pioneer farm site in 1998, the site's development as the Agricultural Heritage Center began in earnest.

In 2001, the Agricultural Heritage Center opened its gates to the public. Since that time, the site restored buildings, moved buildings to the AHC from other sites, and built reproduction structures. As of this writing, it is open for public visitation from April 1 – October 31 every Friday, Saturday, and Sunday from 10 a.m. – 5 p.m. and by special request for group tours. From November 1 – March 31, the site is open on the 1st Saturday of each month.

Besides educating the County's residents and visitors about the rich agricultural history of Boulder County, the site's remaining farm acreage is currently leased to a local rancher for raising cattle and crops. Visitors have the opportunity to view actual farming in progress.

In 2006, the city of Longmont constructed the Lake McIntosh walking trail, which meanders 3.5 miles around the lake. The Boulder County Youth Corps installed a trail connecting the Agricultural Heritage Center to the Lake Trail in an effort to make the site more accessible.

The Site's Educational Offerings

Based on the site's statements of purpose and its principle interpretive themes listed below, the management goal for the site is to produce interpretive and special events that are alive, creative, and dynamic, while offering as many hands-on educational opportunities as are safely possible.

In conjunction with the Americans with Disabilities Act, some necessary historical site compromises have been made regarding modern wheelchair ramps, electrical lighting, crusher fine walking trails, interpretive panels, and modern museum-style educational exhibits in the Stroh-Dickens Barn. Although this site is not a "purist" historical site, i.e., recreating all the daily activities of the Lohr family from a particular time period, in general we will strive to focus on creating the feel of being in a 1900-1930 setting for the farmyard. The interior of the farmhouse enters a more focused interpretive period of 1909-1919. We portray how it may have been for the first ten years the Lohrs lived here.

In addition to meeting State education standards for history, a major interpretive goal will be to not only describe the features of the site, but to tell a story - the human story of the County's agricultural pioneers and their lives in the family, on the farm, and "in town" over several generations. This story will relate how the County's residents adapted in terms of how they worked their lands and what success meant for them in terms of lifestyles and recreation. It will also include how different cultures helped form the core identities of the County's rural communities. By telling the story in a compelling way, we want to stimulate a visitor response that forms a relationship between them and their own life concerns and values, leaving them something to think about as they leave.

For interpretive programming, the site's themes will be related through both personal and non-personal means. We offer a personal guided tour experience to as many visitors as possible. For those who decline a personal tour, a self-guided brochure tour is available during the site's open hours. Pre-scheduled group tours or special farming-related educational programs are offered to groups including but not limited to school groups, seniors' groups, and scout groups.

We aim to celebrate the County's rich agricultural heritage through family events that engender the local flavor. We hold an annual Crafts and Trades of Olden Days, which volunteers showcase many different skills and trades. In June, we have a Barnyard Critter Day special event. Different varieties of livestock roam the farm on this day.

The site is available for small picnics, group meetings, and other public gatherings as deemed appropriate. It houses facilities for recording and archiving oral histories of

citizens related to the County's agricultural heritage, as well as the period clothing bank for countywide cultural history programming and volunteer management.

The Agricultural Heritage Center's Interpretive Themes

Background Context for Boulder County's Agricultural History

The agricultural history of Boulder County is central to its diverse cultural and physical landscapes and is part of a broader regional and continental scheme that involves centuries of both conflict and cooperation between different cultures and their various relationships with the land and its resources.

The Pioneer Farming Families of Boulder County

Although pioneer industries such as fur trapping, mining, and freighting made up the County's early to mid-1800s economy, the families that settled to farm, produce livestock, and establish agricultural support industries that were critical in carrying the region through the environmental and economic "boom and bust" cycles of the late 1800s through the mid-20th Century.

The Environmental Challenges Faced by Boulder County's Agricultural Pioneers

For long-term survival, Boulder County's farming and livestock producing families were forced to adapt to ever-changing environmental challenges such as cycles of wet seasons versus drought, locust invasions, floods, livestock epidemics, and introduced exotic weed species.

Annual Cycles on the Farm and Ranch

The annual cycles of livestock management, as well as the clearing of land and the planting, cultivating, harvesting, and selling of crops, dictated the seasonal work lives of Boulder County's agricultural pioneers and their hired hands.

The Built Environment of Boulder County's Agricultural Landscape

The built environment of Boulder County's agricultural pioneers reveals much about the transformations that occurred in their work and home lives over several generations.

Farming & Livestock Implements

The various implements and equipment on site reveal the technological changes experienced by Boulder County's agricultural families as horse power gradually gave

way to steam power, and when steam power gave way to the internal combustion gasoline engine.

The Farm House & Its Furnishings

The architectural style of the 1909 Lohr family farmhouse, along with its furnishings from the period from 1909-1919, reflect the material culture aspects of a period when rural Boulder County farm families underwent great change in terms of life around the house, especially in how they completed chores, how they recreated, how they communicated with their neighbors, and the context in which they formed their world views.

The Multicultural Aspect of Boulder County's Agricultural History

Boulder County's agricultural history blends a mixture of diverse cultures, ethnicities, and even religious backgrounds; over time, both conflict and interdependence have brought together Native Americans, Anglos, African Americans, Swedish, Asians, Italians, German/Russians, Hispanics and others in weaving the multi-cultural landscape's collective fabric.

The Present and Future of Boulder County's Agricultural History

To survive the environmental uncertainties and global agribusiness trends of Boulder County's more modern agricultural history, its farming and livestock producing families have been forced to either give up or adapt to the economic and political trends brought on by technological advances and the corporatization of agriculture.

Leading Tours

Greeting and Orienting Visitors on "Open Days"

From April 1st to October 31st, guided tours of the site will be offered Fridays, Saturdays, and Sundays at 11:00 a.m. The tour guide/interpreter will greet the visiting group at the Welcome Kiosk. Start the 11:00 a.m. tour promptly at (but not before) 11:00 a.m. We also hope to be able to offer guided tours to as many "walk-up" visitors as possible throughout the day.

"Walk-up" visitors entering the parking lot and finding a parking spot can be easily be seen from many windows in the Lohr Farmhouse. This will allow the interpreter enough time to greet them with a smile while they are walking to the Welcome Kiosk.

For these "walk-up" visitors, please introduce yourself and explain that you are a Boulder County Parks & Open Space volunteer. Then explain that the Guided Tour is optional. They are welcome to either a self-guided brochure tour or a personally guided tour. ("I'll be glad to show you around, etc.")

If they decline a guided tour, please direct them to the Welcome Kiosk for the site brochure. Also note that after the self-guided tour, which ends at the house, we will be available for any questions they might have. Often times, those that opt for the self-guided tour ask a couple questions before they get started. If they do opt for the guided tour, lead/direct them into the Entrance gate onto the lakeside field pathway. After the guided tour suggest that they grab a brochure to wander the site at their own pace or save it as a memento of their visit.

Mention that restrooms are in the "outhouse" near the kiosk and in the large red barn. Wheelchair patrons are allowed to use the staff/volunteer restroom in the Lohr farmhouse.

Checklist for Leading Tours at the Agricultural Heritage Center

For all tours:

- **Be prepared**: Arrive early to unlock the parking lot gates, unlock the house and barns, and prepare the house by moving chairs to the front porch and lifting window shades.
    - Do you have your nametag, props such as a microphone, event flyers?

- **Be at the Welcome Kiosk at least 5 minutes before the scheduled tour starts:** Most people will need reassurance that they are at the right spot!

- **Start on time**: Time is valuable and people who arrive on time want to start on time.

- **Set expectations:** Tour length (60-90 minutes), the distance you're going to travel, where the restrooms are located, general topics you'll discuss, and which buildings you will enter. Also, tell them where you'll end the tour.

- **Review important rules & regulations**: Such as no smoking on site and no climbing on fences or structures. Ask chaperones for help keeping students safe and in line.

- **Make your first stop within view of the parking lot**: So late comers can still join you.

- **Always stay in the lead**: Your group needs to have a leader and that person should be you! You're the person who knows where the stops will be, and by staying in front, you won't have to call people back to any location.

- **Go slightly past the feature you want to interpret**: Since the group is behind you, this will get them right where you want them.

- **Speak loudly and clearly so everyone can hear you:** Repeat questions so all can hear. If you have a large group, ask them to crowd-in and have children step in front.

- **When stopping, keep the sun out of the visitors' eyes**: It can be a big distraction for many people. Unfortunately that often means the sun will be in your eyes.

- **Involve the group**: Ask questions and allow audience members to ask questions. This can uncover what the group knows and their interests.

- **Use teachable moments**: Stop and enjoy the surprises you see along the way. This could be a calf frolicking in the field or a hawk flying overhead. Never be determined to "reach the end" . . . interpretation is leaving them wanting more!

- **Return on time:** Time is valuable. Stick to expectations you set at the start of the tour.

- **Conclude the tour with a definite end:** Don't just drift off, but tie the tour together and end it. Thank the group for joining you, but also encourage them to revisit features or buildings they thought looked interesting. Then welcome them to come back to the site with other family/friends. Stay for questions from any individuals, allowing others to leave the tour.

- **Wrap up and lock up**: Return any supplies used, lock up buildings and gates.

- **Complete the AHC Volunteer Feedback email sent to you by Discover.**

Notes on Discipline for Children's Tours/Programs

Although it is not your job to teach discipline in an hour-long interpretive program, you will still need adequate control of the group. Otherwise the experience may deteriorate for everyone.

Reasons children might have a hard time listening or complying:

- They're just excited, novelty: New place, new people, new experiences
- Some children may have sensory or emotional challenges
- Teachers and chaperones might think they're off the hook for corralling kids

DISCIPLINE SUGGESTIONS

1. **Set realistic expectations when working with children.** They have different attention spans, interests, and thought processes. You cannot expect them to behave as adults, or have the same responsibilities as adults. Do a lot of active listening. The best interpreters develop an ability to listen to four different questions at once!

2. **Good attitude.** Show you genuinely care about them and their experience.

3. **Active leader.** Set behavioral expectations at the beginning of the program. Act on individual behaviors quickly. "Karen, the rule is to stay on the trail."

4. **Solicit help from the parent's at the start**. Parents (make eye contact); I'm going to need your help to make sure everyone stays together and safe." Now you're sharing the responsibility of discipline.

5. **Solicit a teacher's (or parent's) assistance in managing a problem child.** Adults might feel uncomfortable interrupting, but when asked, they will help. Suggest to an adult she walk with the problem child. This often helps immediately.

6. **Avoid loudly correcting or scolding.** Don't yell -- yelling only confirms that you have lost control and makes everyone (including you) feel uncomfortable.

7. **Turn a "problem child" into a helper.** Give the child a responsibility. "Johnny, can you do me a favor and hold on to this rope for the rest of the program?"

8. **Model appropriate behavior** (pick up litter, speak quietly around animals, stay on the trail) and you will find children following your lead without needing to lecture.

After the program, contact the Volunteer Coordinator and explain any problem(s) you had so they can follow up with advice and new strategies.

Guided Tour Outline

(**Important Note:** This tour outline is only intended to be informational. Please do not plan to follow this outline verbatim because it is far too much information to try to incorporate into a 60 – 90 minute tour.)

Welcome/Hello

(The dialogue below is not for you to memorize word for word, but to instead give you options for producing cue cards or props.)

Hello and welcome to the Agricultural Heritage Center. My name is…and I am a volunteer interpreter for Boulder County Parks and Open Space.

Today you'll hear several stories that relate the lives of some of Boulder County's farming pioneers.

Also, this will be a 60-90 minute walking tour, so we'll need to walk at least as far as the big red barn and windmill you see across the field. The tour will end behind the white farmhouse.

Setting the Stage

Speaking of walking…a pioneer named George McIntosh walked to this region from Wisconsin behind an oxen team in 1860 during the '59 gold rush. Besides coming to improve his wealth, he was also coming to improve his heath as doctors of the day often prescribed arid climates for people with asthma and other lung ailments.

Imagine what this landscape was like when he got here…Instead of cows grazing these fields, bison (or "buffalo") and antelope would be grazing on the rich prairie grasses that grew in this area, additionally the lake was more of a swampy mud bog than what it looks like today.

Also, imagine this busy State Highway 66 as not a major thoroughfare but as a trail used for hunting, trade and warfare by Plains Indian tribes such as the Arapaho, Cheyenne, and their archenemies, the mountain-based Ute. In fact, it's still called the "Ute Highway."
(Instead of the "imagine" approach, other possible techniques for setting the stage might include beginning the tour with a pertinent thought-provoking statement or question, or using a startling technique such as cracking an oxen drover's whip or

using freighter's commands, or using an interesting/pertinent Native American or early explorer's quote. We welcome you to be creative!)

Yes, trade was booming by the time George McIntosh came here. As a matter of fact, most miners did not "cash in" during the Gold Rush. Rather, farmers like "Mr. Mac" sold supplies such as hay and food to the miners for a high profit. They usually fared much better than the prospectors in terms of settling in Colorado for the "long haul." **(Like many other Colorado pioneers, George McIntosh had a variety of professions during the turbulent 1860s. After claiming a 160-acre farm in what would later became the town site of Greeley, he began a short-lived stint in hard rock mining near Central City. With the onset of the Civil War, he served with the First Colorado Cavalry. After the Civil War, he returned to farming near Ft. Collins, but soon started a freighting operation on the Overland Trail.)**

But then trade in this area died down very quickly. What national event considerably slowed things down in The West in the early to mid-1860s? **(The Civil War.)**

Like many other Front Range farmers, "Mr. Mac" joined the U.S. Cavalry and fought the Confederates in several skirmishes in New Mexico. He was discharged about a month before the now infamous Sand Creek Massacre of the Arapaho and Cheyenne in Southern Colorado. (About 200 men from the Colorado 1st did participate with the Colorado 3rd in the fight at Sand Creek.) The massacre started the longest war in U.S. history.

After the end of the Civil War in 1865, the continuing Plains Indians Wars meant freighters supplying the military outposts throughout The West were in high demand. One of those freighters was George McIntosh. It was his post-Civil War freighting runs that brought him through this area, as Pella (now Hygiene, about a mile southwest) was a stop along the Overland Trail (**show a laminated map of the route if you want**).

According to George McIntosh, he decided to farm this area because when he would pass through this natural drainage, he noted it was great for pasturing his oxen teams. He said, "The grass grew high enough to hide a buffalo bull." And speaking of hiding, at night he would make his bed in a hidden spot some distance from his wagon because of the constant threat of Indian raids during this period. He also learned to speak Arapaho fluently in an effort to survive along the trail.

(The Arapaho name for Long's Peak and Mount Meeker is "nay-ni-sote-uu-u" or the "Twin Guides" as it provided a landmark for travel.)

<u>By Field Sign</u>

Many early farmers found that this area's semi-arid climate required very different techniques than the ones they were used to back east. In order to produce hay to feed the livestock needed for getting people around and powering the farms and businesses "in these parts," farmers along the Front Range had to dig ditches to divert the streams of mountain runoff into hay fields. Early on this digging was done by hand, later with a special ditching plow. (For kids, you can ask if anyone has ever dug a hole or trench.)

Flooding hay fields using ditches is called flood irrigation. You let the water through certain floodgates and control the flow by damming the water and making it flood over into a certain area. **(Depending on the season's timing, the site's agricultural tenant may have modern piping visible. If so, you could add)**: For modern flood irrigation, you can use pipes with holes in them (gated pipe), a technique which saves a lot of work because you can control the flow by little openings or "gates" in the pipe instead of the more imperfect method of trying to control ditchwater directly with dam canvas.

(One prop may be to show the diagram of The West and where the 98th Parallel lies, i.e., where the semi-arid plains begin. The 98th Parallel runs through Omaha, NE)

After the Civil War, the population of the Colorado Territory's Front Range began to explode, especially after the 1867 Medicine Lodge Treaty when the local Arapaho and Cheyenne Tribes were relocated to reservations. Helping to feed that growing population were farmers like George McIntosh who produced wheat to sell to the local mills like the one at Pella. The mills would process that wheat into flour for making bread.

In 1868, Mr. Mac filed for a homestead patent and as required by the patent, built a log cabin. In 1872, he married a young widow named Amanda and began his family. Amanda had two sons from her previous marriage and she and George had four children of their own. When Amanda's father died in Montana in 1877, her mother and brother came to live with them. Would you like living in a log cabin with nine other people? Mr. Mac needed a little space, so in 1878 he built the house across the street.

<u>By the Silo</u>

Around 1900, Boulder County's rural landscape began to change with the advent of the tower silo. To store large amounts of feed for livestock, it was filled with fodder blown through a tube to the top by a feed cutter/blower, then compressed to prevent exposure to air, allowing it to ferment instead of spoil. As the silo filled up, the vertically stacked openings were closed off. Tamping the silage down by foot from the top of the stack in the silo was very dangerous. If you slipped into the loose silage and couldn't get out fast enough, you could suffocate. *For adults only*: Also, it was understood that if you

pulled a handful of silage out of the openings at the bottom and chewed on it, you would get drunk. Some farmers even claimed the silage made their cows tipsy.

A common misconception is that the corn fields you see while driving around the county (or anywhere) are fields of sweet corn. For perspective, here are some figures comparing corn production for different uses.
2021 acres harvested via USDA
Sweet Corn 356,700
Corn Grain 85,388,000
Corn Silage 6,481,000

By the Stroh-Dickens Barn

This large red barn, called the Stroh-Dickens Barn will be open for you to examine after the tour. The main section of the barn contains permanent hands-on exhibits. Although the upper level, the haymow, is off limits to the public, you can still take a good look at its size from the entryway of the barn. The wing on the north side of the barn houses rotating guest exhibits and composting restrooms.

The barn was built in 1900 and has been moved here from the north Longmont property of the William Dickens (and later, the Stroh) family, an early Longmont pioneer who, like George McIntosh, farmed, freighted, fought in the Civil War/Plains Indian Wars (he was at Sand Creek), and returned to a very successful life in farming and banking. He was killed mysteriously in 1915, some speculate as a result of the role he played in a feud many years earlier.

This barn's huge upper level hay storage space reflects how, although many different feed grains (such as alfalfa, barley, corn, oats, and rye) were being grown around the turn of the century, it was hay (whether alfalfa, clover, field peas, grasses or timothy wild hay) that was the most common crop in Colorado by 1900. The Dickens family needed large amounts of hay to feed the draft horses that powered their large landholdings.

By the Windmill

The fan for this particular windmill was made by Aermotor. In 1888, the Aermotor Co. of Chicago was the first company to adopt the all-steel design. Around 1916, it announced its "Auto-oiled" windmill design, with every moving part running in a bath of oil, and only required an oil change once a year. Like most other steel mills, it was heavily galvanized to prevent rusting. The company was able to furnish towers from stock as high as 80 feet and rose to dominance in the industry.

Windmills generally could raise groundwater from 300-400 feet down. Windmill towers were the subjects of considerable design -- as a result, relatively few towers collapsed despite heavy winds and storms.

In windmill terms, the tail was often referred to as a "fan" or "vane." While the wheel looked like a fan, it was usually called the "wheel" or "sail."

Parts of this windmill came from the Waneka property in Lafayette.

Livestock Pens (contents of pens change from year to year, so stay in the loop on who is there)

Start with the west corral pen: On a farm like this a hundred years ago, it was common to see draft horses as a main source of power to operate farm implements and move large objects. Can you think of the type of things a draft horse would move? (pull wagons, plow fields, pull planters, mowers, rakes, harrows, etc.). Generally speaking, most people wouldn't ride draft horses, instead favoring smaller horses. We often have the Belgian breed (chestnut color), but other breeds include Clydesdale, Percheron, Shire, and Suffolk.

East Corral pen: We typically have mini-livestock: horses, donkeys, mules, cows. Now, in stark contrast to the draft horses, we have mini horses. While you might think of a petting zoo when you see these critters, miniatures have a place in history. Often, farms would have at least one or two "mini's" as pet livestock for children to learn how to care for animals. Miniatures have historically been used in work situations where space came at a premium, such as inside a mine shaft.

Pig Pen: we often have a couple of pigs. Pigs are primarily raised on a farm for the food products they provide. Can you name a few products that come from pigs? (pork chops, bacon, hot dogs, brats, sausage, pig ears for dogs, etc). Pigs today are raised to be lean for their meat products, but when the Lohrs lived here, pigs were also raised for lard, so they generally were fattier, sometimes with a big hunch back of fat. People used lard for cooking and for other products like soap. Why do pigs like to sit in the mud? Pigs have skin like ours; it can burn from the sun, so it's like sunscreen, SPF 10000! They don't sweat so it helps keep them cool. It also keeps insects like flies off their skin.

Sheep/Goat Pen: They usually rotate. We talk about products these animals can provide. What is that thick, dirty, white stuff that grows on the sheep? (wool) We use wool for clothing and blankets, hats, mittens, sweaters, pants, etc. Some sheep don't have very soft wool, so they usually end up being harvested for meat. Has anyone had lamb chops or mutton? Goats are funny critters because they're very curious. Goats are

living weed eaters and lawn mowers. They are sometimes harvested for their meat, but more so for the milk they can provide.

In between the sheep pen and McIntosh Barn

With a series of droughts alternating with severe winters of 1884-1887, the price of beef in Colorado began a ten-year decline. Colorado cattle ranchers like George McIntosh who remained in the industry turned away from open-range operations in favor of sedentary ranching designed to produce stock of high quality. Fencing, wells and windmills, crops of alfalfa along the bottomlands, and controlled breeding programs were all part of the new ranching style. By the turn of the century, many Colorado cattle ranchers had made a complete transition with the bulk of their investment now in land, fencing, and farm machinery rather than free roaming herds. A rancher in the new century spent more time typing letters to railroad agents and feed dealers than breathing the dust of the trail.

This corral area is where about 100 head of cattle were fed in winter and branded in spring. The cattle brand that George McIntosh used was an "LO quarter circle," which was originally owned by his wife Amanda's first husband. Not too long after George McIntosh's daughter Minnie married an early Hygiene postmaster named George Lohr, they took over the McIntosh homestead and assumed the cattle brand. In very much of a coincidence, the cattle brand that the Lohr family ended up with just happened to be the first two letters of its last name…

The loafing shed was a multi-use structure. Heavy smoke residue could indicate that it may have been used for either the forging of horseshoes or heating up of a cattle brand. A third of this space has been converted into a permanent blacksmith shop for special events.

For the five decades in which the Lohrs worked this land, they drove their cattle by horseback to the foothills for summer pasturing and to Hygiene for shipment by railroad to sell at the Denver stockyards. Beginning in the late 1950s, the Lohrs leased their property to other local families. In later years, the cattle chute to your left was salvaged from a nearby farm to be used for loading cattle onto trucks for shipment to market. The concrete watering trough south of the cattle chute and the feeding trough west of the large red barn were also added as the corral area was eventually used for up to 400 head of cattle.

Like many farms, this site shows evidence of the resourcefulness of folks living in relatively rural areas. Their keenness for recycling materials sets a good example for the families and businesses of today. For instance, the feeding bunk behind the large red

barn was made of used irrigation pipes cut in half and inverted. Used railroad ties serving as solid fence posts can also be seen scattered around the site.

By the Bone Yard (can be said of any area around the farm with random scraps)

Most farmers had (or still have) a bone yard area on their property. Bone yards typically stored discarded farming implements that provided scrap metal and wooden parts for farm machinery and structures.

Then vs. Now: It used to be that when farming equipment broke down, farmers would have to learn how to repair the machines themselves, using parts out of the bone yard. Today, from their air-conditioned tractor cabs, they can call on a cell phone and have parts "Fed-exed" overnight.

By the Mac Barn

So we know that to be a successful farmer in the Colorado you had to work with the land, and divert water from the streams. But what other natural force can wreak havoc along Front Range? (Wind, but this area has also been called "Hail Alley.") The effects of the wind influenced the way Mr. Mac built this multi-use barn in 1881. He used wooden pegs instead of metal spikes and he did not make it airtight so it was able to sway with the wind. This construction method is called mortise and tenon joinery.

He also built the lower part of the barn into the bank of a slight hillside (a "bank" barn). Why do you suppose he would have done so if that area was going to be used for milking cows? (Because that would help keep that area cooler for preserving the milk.)

On the east side of the barn is a calving area. It has elevated floors for the cow to stand on. This way, when the calf exits its mother, someone standing at ground level can receive it more easily at arms' level.

As for the stable on the barn's west side, each of the four stalls has enough room for a team of two horses or mules. Hay can be easily forked to the horses' feed trough from the central storage section (or "hay mow") of the barn. Each trough has a small compartment for oats or other dietary supplements.

The 2002 restoration of the 1881 Mac Barn was made possible by a grant from the Colorado Historical Society's State Historic Fund. You can see the support cables holding the roof intact and newer looking boards from the inside. Over the past few years, those newer boards have blended in well with the original on the outside of the barn.

By the Granary and Honey House

We are looking at two different styles of granaries. The building on the left was referred to as a studs-out granary because the studs were placed on the outside. It has been converted into a honey house exhibit that we use during special events. The exhibits feature beekeeping and honey harvesting practices with historic tools and machines.

The white granary is original to the site. This structure was used for storing feed grains. Grain was loaded through the small upper openings by a long pole called an auger. The painted granary is original to the site. Foundation remnants of a round cylindrical steel granary are visible on the ground between the two. Why do you think you would want the granary foundation to be as solid as possible? (Mice)

From the same pathway location

The milk house is a replica that sits on the original concrete pad along the yard ditch. Putting cans of fresh milk down in the ditch water would keep it cold until the milkman could purchase it or the Lohrs could take it into town to sell.

Shorty Lohr recalled how his family would sell eggs and butter to "the aristocrats in town." The sale of eggs and butter provided money that they could spend on staple groceries during trips to town. Today, however, farming is generally no longer subsistence farming. Instead, huge industrial co-ops produce large amounts of poultry and dairy products.

Chicken Coop

The coop and section above can be similar. We know that the Lohrs kept Plymouth barred rock chickens around the turn of the century. Chicken breeds are chosen based on whether they are good egg layers or meat birds, sometimes both. Did you know that hens don't need a rooster to lay eggs? His only job is to fertilize eggs, so if he's not around, no baby chicks!

By the Garage

Like other farmers in the early 1900s, the Lohrs used horses and wagons or buggies. We know that they purchased a 1916 Dodge. As cars got much larger in the 1940s, you can see where they added on to the garage.

Shorty Lohr claimed that one of the worst things about the 1930s for him was not the Depression. Instead, one of the worst recollections he had was the day the wind caught the garage doors, blowing one into his face, almost causing the loss of his eye.

Visible on the garage's southeast corner is a patch of red paint. When the barn was restored, that area was red, so the restoration staff duplicated it.

Lohr Farmhouse

(Please enter the house through the back door)

Kitchen

Several items we'll point out in the kitchen show how things became more convenient, sanitary, and economical during the early 1900s. First, this telephone helped them communicate with distant neighbors. But unfortunately there wasn't much privacy - anyone on the party line could listen in…

Second, because this house most likely piped in sink water from a cistern or well pump, water for cooking did not have to be hauled far by hand. Also, having a cabinet with conveniences for baking bread located all in one place made life simpler. The style of this freestanding cabinet is called the "Hoosier-style" because the major brands of the day (Napanee – like this one from 1916 - or Hoosier Manufacturing Co., McDougall Co. or Sellers Co.) were all based in Indiana. "Hoosier" cabinets were precursors of the modern kitchen cabinets.

The 1881 wood-fired range was not only used for cooking, it was also used for heating water for laundry, which was most likely done in the basement or on the back porch - which has been removed to allow for wheelchair accessibility. The icebox you see probably would have also stood on the back porch where it was usually a bit cooler. The porch would also have been used for sleeping on hot nights, shelving canned goods, and storing things such as dirty boots or the lap robe used in buggies or automobiles before they had heaters.

Shorty's Bed Room

Please take turns entering the bedroom. We have furnished it to look as it may have if Shorty slept there as a farm boy. (If someone asks, this room was likely not originally a main bedroom. Possibly a guest bedroom for hired help, or another room.)

For recreation, Shorty played baseball, swam in the irrigation ditches (a dangerous activity because many children drowned in the ditches), had skating parties on the lake with bonfires, and took his horse and shotgun up to Rabbit Mountain to bag a "sack of rabbits."

To get to Longmont High School, on good weather days he would ride his bicycle. On bad weather days, he would ride his horse.

And being born in 1900, Shorty could have been just old enough to see action in World War I, but young farmers were given draft exemptions.

One last thing about the bedroom: Like the downstairs, the upstairs of the house does not have a bathroom. (The two bedrooms upstairs are now used for office and volunteer space). The chamber pot under the bed was used on those nights when it was too cold to go out to the privy, which you will see straight out the back door by the fence as you exit the house.

Enter the Dining Room

Next to the front door is Minnie and George Lohr's portrait as newlyweds. And on this wall to my right is Minnie about a year later, taken with her baby boy, Neil, later nicknamed "Shorty." As you can see, Minnie McIntosh Lohr was very style conscious.

Their second son, Harry was born in 1905 and due to his poor health, the Lohrs moved to Covina, California on their doctor's advice. Apparently his health improved, because by 1909, they had returned to Colorado and built this house, a mail order design popular during the period.

The photograph to the right of the stairs is of the Ladies Aid Society of Hygiene.

Looking to the front porch

There's a good chance that on the porch of the house across the street is where Minnie McIntosh met her husband-to-be George Lohr on his Rural Route 3 rounds as the Hygiene Postmaster.

Enter the Parlor

The family portrait straight ahead, above the Victrola, shows the McIntosh family in the yard across the street. This would have been very close to the time Minnie met George. We know this because the sleeve style worn by Minnie, her mother, and sister-in-law was fashionable only during the mid-1890s.

While pointing to the Lohr family portrait to the right of the Larkin-style desk/bookcase (secretary)**:**

This family portrait is from about 1917, as Shorty, born in 1900, appears to be of high school age. We have furnished this house to look as it may have during the first ten years that the Lohr family lived here, that is, 1909-1919. This is an interesting period of history not only because it was the "Golden Age of Farming," but it also represented the transition between Victorian and "modern" America. Of course, we say "modern" in quotations because this house was still very rural at the time. Although many city folks had electricity before 1920, the Lohrs most likely depended on natural gas for heating and lighting. The natural gas fixture you see above in this room is more typical for the 1910s than the later electrical overhead fixtures elsewhere in the house.

In the 1910s, before the availability of radio and television, the family may have gathered in this room at night, lit their lamps, and proceeded to play music on what was the latest rage at the time – no, not an iPod - but rather a player piano.

(If you are familiar with its operation, this is a good time to demonstrate the player piano. Due to the somewhat fragile nature of the piece, demonstrations and use of the piano should be limited to staff and/or volunteers.)

In houses from this period, in general people were reacting to formal parlors from the late 1800s Victorian period and were less inclined to have each room in the house set aside for only one specific use. Instead they began favoring more open architectural arrangements, with each room being used for a variety of activities. For instance, the dining room would have been used not only for eating family meals, but perhaps also for doing farm business work, or, in the case of Minnie McIntosh, hosting gatherings of the Hygiene Ladies Aid Society and other social/political functions.

(On tape, Shorty Lohr laments about often coming home to a house full of "damn politicians")

Just outside the back door

Smokehouse

Located behind the farmhouse was the smokehouse, which was replicated here in 2009. Smokehouses were used to preserve meats by drying them out with a smoky fire. (For kids: "Has anyone ever eaten beef jerky?") According to Shorty Lohr, George Lohr had hardwoods shipped from "back east," as being from Pennsylvania (most likely of Dutch stock) he disdained the woods readily available around here.

Garden

According to Shorty Lohr, his mother Minnie was not much of a gardener. We have this small plot to tell the story of the "war gardens" popular in the 1910s. During World War I, the government encouraged families to grow and consume their own fruits and vegetables, so that large supplies of produce could be shipped abroad.

Orchard

We know that George McIntosh exhibited apples he grew in the 1889 County Fair and by 1892 was making more money from his orchards than the rest of his farming operations combined. Also, according to newspaper articles from the period, keeping bears from eating the apples sometimes presented a challenge to local farming families.

Conclusion

Before we conclude, does anyone have any questions?

Well, then, I'd like to leave you with one last thought:

In his later years, George McIntosh moved into Longmont, but would make the long walk regularly to visit the Lohrs here at their farmhouse. Upon his death in 1924 at the age of 87, his obituary described him as "a man of very unusual character, full of optimistic vision, benevolent, and philanthropic in every way." Well, apparently Shorty Lohr took after his grandfather, because by the time he reached his 80s, he could have sold this land for a considerable amount of money. Instead, he chose to help preserve the landscape by selling it at a discount to the County as open space and he then donated a public trust to turn part of this land into an educational site.

And because of people like Shorty Lohr, today about 25% of Boulder County's open space is agricultural land, something we hope future generations will enjoy.

Thanks for coming today. Please feel free to wander around and see the wayside panels as indicated on the map of the self-guided brochure. We will be available at the house for any questions you might have. If we don't see you again before you go, please come back soon and be very careful pulling out of the driveway.

Eco-Cycle Themed Tour (70 – 80 minutes)

1. Introduction at the kiosk (5 minutes)

- Welcome to the AHC, a BCPOS site.

- Our focus today will be on the 3 "R"s. Thinking about Eco-cycle, can someone tell me what they think the 3 Rs represent? (Answer: Reduce, Reuse, Recycle)
- Before we start, I need to tell you about a few rules.
  - Stay with the group
  - Do Not feed, chase, or try to handle any animals
  - No climbing on fences or machinery
  - Please raise your hand if you have a question
- Turn the group into "oxen" and teach them, Giddy Up (Move ahead), Gee (go right), Haw (go left), and Whoa (Stop)
- Start the group down the trail with "Giddy Up"!

2. <u>Stop the group near the first tour box and ask (5 minutes)</u>

"What was discovered in Colorado in 1858?" (Gold) The Gold Rush brought 1000s of people to the Front Range, including a man named George McIntosh. Although he had done a little mining, he didn't come to the Rocky Mountains to be a gold miner, although **he thought that the mass movement of miners into the area could afford him an opportunity to make money.** The main reason he came to this area was because **a doctor back east suggested that the higher and drier climate here might give him relief from his severe asthma.** Apparently, moving here did help because he told his grandson Shorty many years later that upon his arrival, he experienced "immediate and lasting relief" from his asthma. (After asking the group to consider question number one below, move them on down the trail and stop at the Interpretive Panel that talks about ditches before resuming your talk.)

1. Why did McIntosh come to the Rocky Mountains in 1860?

a) because of the fertile soil
b) hoping to improve his asthma
c) to make money
d) to ski

3. <u>Standing beside the Irrigation Interpretive Panel (5 minutes)</u>

Upon his arrival in the Rocky Mountains, Mr. McIntosh first set up a farm in the Greeley area, but that didn't last long. What happened in 1861 that affected the whole country? (Civil War) Right, war broke out. Mr. Mac enlisted with the First Colorado Cavalry and served three years with the Union Army. After his discharge, he returned to this area, and under the provisions of the Homestead Act of 1862, he filed a claim on a quarter section (160 acres) right out here in 1868 and the Homestead Act required that he live on it for 5 years and that he "prove it up," which simply means to turn it into a working farm. So, he built a small cabin and before he could start growing crops, what did he have to do first? (Clue: Colorado only gets 10 – 15 inches of precipitation per year.) Once it is clear that digging ditches was his next priority, then give the "oxen

team" a giddy-up and move on down toward the barn stopping at the manure spreader.

2. What did the farmers dig to get water to trees and crops? **Ditches**

4. Standing at the manure spreader (5 minutes)

Mr. Mac was not only a farmer, but he was also a rancher. When an animal eats, food goes in one end, and… (pause for effect and hopefully someone will say, "it comes out the other." If they don't, you may have to prompt). Right! And what happens to all that manure? (Briefly explain how the manure spreader works. Move over to the barn before talking about the hay hooks.)

3. Spreading it over the fields to provide free **fertilizer** for the soil is one way of recycling manure.

5. Livestock (15 minutes)

Standing near the hay hoisting interpretive sign
Give a preview of what the kids will see with the animlas before taking them to the pens.

- We're going to walk over to that pen to see how farmer's used power before they had tractors. They are called draft horses, which means that they are bred to be larger than riding horses and can be trained to do work like pull plows, wagons, manure spreaders, and mowers to name a few.
- Walk over to just watch the horses.
  - Get them thinking: What do they eat? Look at those huge hooves! I wonder how much they eat in a day? (almost an entire bale a day each)
- East Corral pen: We typically have mini-livestock: horses, donkeys, mules, cows
- Now, in stark contrast to the draft horses, we have mini horses. While you might think of a petting zoo when you see these critters, miniatures have a place in history. Often, farms would have at least one or two "mini's" as pet livestock for children to learn how to care for animals. Miniatures have historically been used in work situations where space came at a premium, such as inside a mine shaft.

Livestock part 2: Standing in front of the windmill
Give a preview of the pigs, sheep, and goats
Pig Pen: we often have a couple of pigs. Pigs are primarily raised on a farm for the food products they provide. Can you name a few products that come from pigs? (pork chops, bacon, hot dogs, brats, sausage, pig ears for dogs, etc). Pigs today are raised to be lean for their meat products, but when the Lohrs lived here, pigs were also raised for lard, so they generally were fattier, sometimes with a big hunch back of fat. People used

lard for cooking and for other products like soap. Why do pigs like to sit in the mud? Pigs have skin like ours; it can burn from the sun, so it's like sunscreen, SPF 10000! They don't sweat so it helps keep them cool. It also keeps insects like flies off their skin.

- Sheep/Goat Pen: They usually rotate. We talk about products these animals can provide. What is that thick, dirty, white stuff that grows on the sheep? (wool) We use wool for clothing and blankets, hats, mittens, sweaters, pants, etc. Some sheep don't have very soft wool, so they usually end up being harvested for meat. Has anyone had lamb chops or mutton? Goats are funny critters because they're very curious. Goats are living weed eaters and lawn mowers. They are sometimes harvested for their meat, but more so for the milk they can provide.

6. Standing in the loafing shed/blacksmith shop (5 minutes)

When our grandparents and great-grandparents were children, reusing and recycling came naturally to most folks, including farmers and ranchers. For instance, when a piece of farm machinery would break down, they wouldn't just take it to the landfill or push it over to a ditch and cover it with dirt. Why not? (The response for which you are waiting will somehow relate the fact that the broken down piece of machinery contains many wooden and metal parts that could be used for something else.) That's right. They couldn't afford to waste all that material. So, this piece (holding up the bent u-bolt) is a good example of a damaged machinery part. It's called a u-bolt and was used to keep the bed of a wagon attached to the frame and the wheels. But, this one is damaged, so what could we do with it? (After a pause, suggest that it contains really good iron that a blacksmith could work into something else like hay hooks which are used for moving hay bales. (Before moving on, ask if anyone has ideas of other things that could be made from the bent u-bolt.)

4. **True** or False. One way farmers could recycle old iron U-bolts was by turning them into things like hay hooks.

7. In the Mac Barn (10 minutes)

So we know that to be a successful farmer in the Colorado you had to work with the land, and divert water from the streams. But what other natural force can wreak havoc along Front Range? (Wind, but this area has also been called "Hail Alley.") The effects of the wind influenced the way Mr. Mac built this multi-use barn in 1881. He used wooden pegs instead of metal spikes and he did not make it airtight so it was able to sway with the wind. This construction method is called mortise and tenon joinery.

He also built the lower part of the barn into the bank of a slight hillside (a "bank" barn). Why do you suppose he would have done so if that area was going to be used for milking cows? (Because that would help keep that area cooler for preserving the milk.) In a way, he was reducing the risk of spoilage and waste.

Corn Shelling Demonstration: Have everyone line up about 5 – 10 feet away from the corn sheller, **safety is paramount**. Can anyone tell me what this is? (ear of corn). This ear of corn has been dried and is mainly used for livestock feed and processed foods that use corn. It's different than the sweet corn we usually eat in the summer time. In fact, most corn you see growing is this type of feed corn and not sweet corn. Guess what? Pigs love corn and sure, they would probably eat this ear of corn as is, but they really like it when the kernals are shelled from the ear. (demonstrate shelling kernals with your hand). But, shelling like this would take a very long time and those pigs are hungry now! That's why we use a machine like this corn sheller. I'm going to crank this handle and you all will want to watch and listen to see what happens. Crank wheel, insert corn, shell corn and stop the wheel. Grab pail with kernals and pull the cob from the machine and show everyone. Do you think George would just throw away this perfectly good corn cob? There are many things he could use it for, fuel for the stove, scrub pots and pans, and even as toilet paper!

If there is time, do corn grinding activity with manos and metates and mill.

Come on, let's check out the farmhouse.
Farmhouse and Yard Exploration (20 minutes total)

8. House (10 minutes)

Backdoor entry: Orient audience before entering
We are about to go into this house and see how the Lohr's lived over a hundred years ago. Before we head inside, I'd like everyone to understand that we need to all stay together and be very careful inside. Please do not touch anything inside the house. If you would like to see something more closely or have a question, please raise your hand and I will be happy to explain or even show you things more closely.

Mudroom
The icebox you see probably would have also stood on the back porch where it was usually a bit cooler. The porch would also have been used for sleeping on hot nights, shelving canned goods, and storing things such as dirty boots or the lap robe used in buggies or automobiles before they had heaters.

Kitchen

Several items we'll point out in the kitchen show how things became more convenient, sanitary, and economical during the early 1900s. First, this telephone helped them communicate with distant neighbors. But unfortunately there wasn't much privacy - anyone on the party line could listen in…

Second, because this house most likely piped in sink water from a cistern or well pump, water for cooking did not have to be hauled far by hand. Also, having a cabinet with conveniences for baking bread located all in one place made life simpler. The style of this freestanding cabinet is called the "Hoosier-style" because the major brands of the day (Napanee – like this one from 1916 - or Hoosier Manufacturing Co., McDougall Co. or Sellers Co.) were all based in Indiana. "Hoosier" cabinets were precursors of the modern kitchen cabinets.

Remember those corn cobs? Corn cobs make an excellent starter fuel for a stove like this. The 1881 wood-fired range was not only used for cooking, it was also used for heating water for laundry, which was most likely done in the basement or on the back porch.

Shorty's Bed Room

Please take turns entering the bedroom. We have furnished it to look as it may have if Shorty slept there as a farm boy. (If someone asks, this room was likely not originally a main bedroom. Possibly a guest bedroom for hired help, or another room.)

For recreation, Shorty played baseball, swam in the irrigation ditches (a dangerous activity because many children drowned in the ditches), had skating parties on the lake with bonfires, and took his horse and shotgun up to Rabbit Mountain to bag a "sack of rabbits."

To get to Longmont High School, on good weather days he would ride his bicycle. On bad weather days, he would ride his horse.

And being born in 1900, Shorty could have been just old enough to see action in World War I, but young farmers were given draft exemptions and did not have to go.

One last thing about the bedroom: Like the downstairs, the upstairs of the house does not have a bathroom. (The two bedrooms upstairs are now used for office and volunteer space). The chamber pot under the bed was used on those nights when it was too cold to go out to the privy, which you will see straight out the back door by the fence as you exit the house.

Enter the Dining Room (focus on stove and/or sewing machine)

Next to the front door is Minnie and George Lohr's portrait as newlyweds. And on this wall to my right is Minnie about a year later, taken with her baby boy, Neil, later nicknamed "Shorty." As you can see, Minnie McIntosh Lohr was very style conscious.

Their second son, Harry was born in 1905 and due to his poor health, the Lohrs moved to Covina, California on their doctor's advice. Apparently his health improved, because by 1909, they had returned to Colorado and built this house, a mail order design popular during the period.

The photograph to the right of the stairs is of the Ladies Aid Society of Hygiene.

Enter the Parlor

The Lohrs called this room the parlor and most people today would call it a living room. Is there anything missing in this parlor that you have in your living room? Where's the big screen tv?

In the 1910s, before the availability of radio and television, the family may have gathered in this room at night, lit their lamps, and proceeded to play music on what was the latest rage at the time, a player piano or Victrola.

(If you are familiar with its operation, this is a good time to demonstrate the player piano or Victrola. There is typically only time for one demonstration. Due to the somewhat fragile nature of the pieces, demonstrations and use of the piano should be limited to staff and/or volunteers.)

Let's head out the front door to switch groups.

5. What was one thing the farmers could burn to help provide heat for the house? (Inform the students that cobs were used to get a good bed of coals in the stove and to get the stove hot, but then other materials like wood were added because it burned more slowly than corncobs.)

a) Tomatoes
b) Corncobs
c) Manure

9. Yard Exploration (10 minutes)

Give directions to a teacher and/or adult chaperone

Explore the area around the farmhouse. Visit the milk house and figure out what it does and how? Why is there a ditch running so close to it?
Visit the chicken coop. Why do people keep chickens? How many chickens do we have? What color eggs do you think the chickens lay?
Visit the garden. What kinds of foods would you grow in your garden? How many fruits and vegetables can you identify? Does anyone here grow vegetables at home? Favorite vegetable?

Smokehouse was used for preserving mainly meats, but could be used for cheese as well. A small fire would burn and the meat is heavily salted and hangs from hooks in the smoke for several weeks. They did this before refrigeration was available.

10. <u>Closing/Wrap Up (2 minutes)</u>

In closing, thank them for coming to the AHC, and invite them to bring their families and come back to visit during the summer.

Finally, pat yourself on the back for a job well done!!

Tour Boxes, supplemental interpretation materials for tour

These tour boxes came from a desire to share more 3-D objects to make the stories we tell on tours more relevant for the visitors. Fellow volunteer, Richard Warner, built them based on the design of the white granary at the AHC. Each box has a padlock and your padlock key will unlock them. Please feel free to use these boxes as you choose, there is no requirement to add these to your tours.

Box 1: Located on the trail just west of the entrance restrooms

Theme: George McIntosh and his journey west
Box Contents

- Map of the United States when George McIntosh came to Colorado (Nebraska Territory)
- Map of the United States after Colorado became a territory
- Bag of (Fool's) gold
- Inhaler
- Images of an ox team, bison, and George McIntosh

Recommended Use Summary: We tell the story of George McIntosh's journey west around this area. The fool's gold and inhaler support George's reasons for moving west, relief from his asthma and his search of riches in the gold mines. The maps show what the U.S. looked like when George was making his move west and during the early years of his time in Colorado, during its transition from Nebraska (north of Baseline Road, Boulder) Territory, Colorado Territory and then statehood in 1876. The images give the audience a better idea of what oxen, bison, and George looked like as they imagine his journey.

Box 2: Located on the back of the interpretive sign at the silo

Theme: Machines in action – manure spreader
Box Contents

- Advertisement of manure spreader
- Advertisement of manure spreader
- Photo of modern manure spreader (not there yet)

- Photo of silage

Recommended Use Summary: It can be difficult to draw a picture for visitors about how machinery works. The advertisements for the manure spreader give a historic view of the spreaders with horses pulling the machine. The visual of manure "flying" out the back can be effective as well. We occasionally have real silage on hand, but when it's not available, we can use the photo of silage to show visitors.

Box 3: Located on the fence of the east corral pen

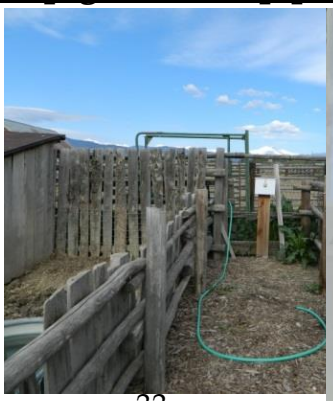
Theme: Animal husbandry and products from livestock

Box Contents

- Image of horse pulling a plow
- Image of oxen pulling freight
- Donkey pulling a cart and mules packing
- Piece of leather
- Horse shoe
- Curry comb

Recommended Use Summary: The images of draft animals in harness pulling carts, wagons and equipment help visitors visualize those activities. The curry comb is a grooming tool used to comb horses. The piece of leather could be used to describe the look and feel of leather harnesses or could be used to show that leather comes from the hide of cows. The horse shoe can lead to discussion of when horse shoes are needed, the work of a farrier, or compare it to the draft horse shoe nailed on to the post a few feet to the west.

Box 4: Located in between the pig and sheep pen



Theme: Products of livestock

Box Contents

- Bar of goat milk soap
- Can of lard
- Knit mittens
- Photo of spinning wheel

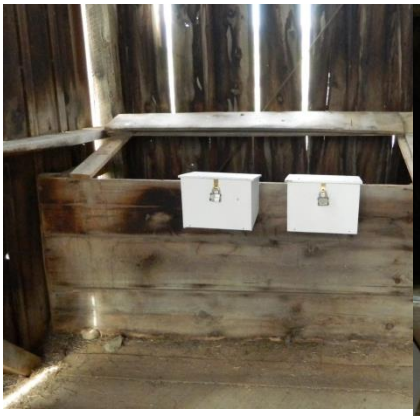
- Photo of sheep shears and shearing

Recommended Use Summary: Use this box to show the products that come from animals in these pens. Goats can produce milk which can be made into soap (or cheese, not included). Sheep produce wool, which needs to be shorn, spun, and knitted into something like mittens. Pigs in old times produced lard for cooking, but modern demands for lean meat have changed why and how pigs are raised.

Box 5: Located in the McIntosh Barn

Theme: Grains
Box Contents

- Wheat berries or seeds (3 – 5 lbs)
- Barley seeds (3 – 5 lbs)
- Laminated fact sheets about wheat and barley attached to inside lid



Recommended Use Summary:
This box is meant to give visitors the chance to touch the grains. The sheets attached inside the lid give you prompts to talk about the uses of wheat and barley. Let people smell the grains if they like. All of the grains in boxes 5 & 6 can be used as livestock feed, so that is a natural discussion point. Please do not let visitors take or grind these grains.

Box 6: Located in the McIntosh Barn

Theme: Grains
Box Contents

- Oats (3 – 5 lbs)
- Shelled corn (3 – 5 lbs)
- Laminated fact sheets about oats and corn attached to inside lid

Recommended Use Summary:
This box is meant to give visitors the chance to touch the grains. The sheets attached inside the lid give you prompts to talk about the uses of oats and corn. Let people smell the grains if they like. All of the grains in boxes

5 & 6 can be used as livestock feed, so that is a natural discussion point. Please do not let visitors take or grind these grains.

Lohr-McIntosh Family Timeline

Example Tour Outline and Timeline - Courtesy of volunteer Diana Hinton

This may be of help with tours as you discuss important dates for the family and site.

George McIntosh born in Ohio in 1837

Lived in Wisconsin (taught school and clerked in a store)

Came to Colorado in the spring of 1860 as a young man (Gold Rush, asthma)

His first 160-acre homestead was in the Greeley-Ft. Collins area (explain the Homestead Act)

From 1861-1864 George McIntosh served in the U.S. Cavalry (Civil War)

1866 George McIntosh stared a freighting business (Overland Trail from Denver to Laramie; supplied U.S. Army posts)

1867 He gave up his Greeley/Ft. Collins homestead and filed for new land—a homestead of 160 acres right here

George McIntosh built a log cabin and began farming

July 21, 1872 George McIntosh married Amanda Lee Noble—a widow with 2 children

By 1883 they had 4 more children: Mark, Walter, George Jr. and Minnie

Amanda's mother, Malinda Lee, and younger brother came to live with the McIntosh family after Amanda's father was killed (Joseph Lee)

1878 George McIntosh built the Victorian frame house across Highway 66 for his growing family

1899 Minnie McIntosh married George Lohr (the Postmaster at Hygiene)

They purchased the original homestead parcel from George McIntosh
George and Amanda moved to Longmont

Minnie and George Lohr had 2 sons: Neil R. (Shorty) and Harry Galen

In 1909 the Lohrs built the farmhouse now standing on this site

Its location is where George McIntosh's first log cabin stood

The families farming here grew crops, raised short-horn cattle, milk cows, chickens, pigs

They later grew sugar beets, apples, beans, and peas

1953 George Lohr died at the age of 88

1964 Minnie Lohr died at age 87

Their son Shorty Lohr continued to farm this land. His brother Harry Galen became a bank manager

Shorty never married or had a family

1985 Shorty sold the farm to Boulder County Parks and Open Space and donated $250,000 to establish an educational center on the property

1991 Shorty Lohr died at the age of 91

<u>Also of interest to groups—especially children—are photos to show during the tour. Some ideas:</u>
These are readily available to print out by doing an internet search; McIntosh and Lohr family photos are in this guide

- US map (to show George McIntosh's journey from Ohio to Wisconsin to Colorado)
- American Buffalo/bison
- Oxen team in yoke
- Person grinding corn with a mano and metate
- Milk cow
- Person milking a cow
- Modern dairy with a milking machine attached to a cow
- Photos of the McIntosh and Lohr families (children especially seem to like looking at the different clothing worn then as compared to now)
- Old photos of the McIntosh home across Hwy 66

Hands-On Activities

As a tour guide, you are welcomed to insert hands-on activities into your tours as time allows. The following activities are just a couple of examples that you could use. Please see the Cultural History Program Coordinator for activity plans or to discuss an activity that you would like to create.

Grinding Corn

Grade Level: preK-5

Time: 10 minutes

Participants: any

Materials: dried corn, either shelled and/or ears
*Before planning this activity, confirm with Tom that that there is a supply of corn, either ear or already shelled. For ear corn, use no more than a couple of ears per group. There is not enough for each student to have his/her own ear.

Suggested location/point in tour: In the McIntosh Barn near the grain grinder
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Objectives

Students will:

- Understand the importance of corn as a food source for humans and other animals
- Be familiar with the process of grinding corn into cornmeal for use as food, and the ways that process has changed over time

Background

Corn has been an important food source for people and animals for a very long time. Some corn-based products include livestock feed, corn syrup, cornstarch, popcorn, and cornmeal for making things like tortillas and cornbread.

Corn has to be ground into meal to be useful for many foods. Man has been grinding up corn into cornmeal for many thousands of years, first using tools such as mano and metate (mortar and pestle), and later moving on to more mechanized methods.

The pioneers had corn shellers and grinders such as the ones found in the McIntosh Barn. These made it much easier to remove the corn kernels from the cob, and then to grind the corn kernels into cornmeal.

Procedure

1) Ask kids to name a few important crops that are grown for food. Some will come up with corn. Let the kids name a few ways that corn is used as food. Mention food for livestock if the kids don't come up with it.
2) Sprinkle a couple of kernels of corn into each student's hands. Hold up a corncob, and explain that corn can be used as whole kernels, or ground up into meal to be put into other products. But first, one has to remove the kernels from the cob, and then grind the kernels. That's a big job for a whole field's worth of harvested corn!
3) Show mano/metate (briefly demonstrate with a couple kernels of corn) and explain that long ago (thousands of years!) people used tools such as this to grind corn into meal. As time went on, new ideas were developed to make it easier to shell and grind corn. Today we have even *more* advanced ways of processing corn into meal.
4) Introduce the sheller and the grinder that Mr. McIntosh might have used and explain briefly what each one does.
5) Demonstrate both for the kids. The machines are a bit dangerous for fingers to get too close to, so collect the corn kernels from the kids to put them through yourself.

After everyone has observed the process, let each child take a small pinch of ground corn to the chicken coop where they should all be asked to put their cornmeal into one

bucket that will then be taken into the pen by the group leader and fed to the chickens while the students observe.

Oxen Team

Grade Level: K-5

Time: Throughout the tour (older students may tire of this toward the end of the tour – use judgment as to whether or not to "unyoke" them)

Participants: any

Materials: rope for the students to hold onto

Suggested location/point in tour: Introduce at the very beginning of the tour

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Objectives

Students will:

- Understand the difference between an ox and a cow, and that oxen are used for work such as pulling wagons
- Remain together as a group throughout the tour by being "yolked" as an oxen team

Background

When the kids are asked what the difference is between a cow and an ox, the guesses will center on things like "Oxen have horns," or "an ox is a boy cow," etc. For all practical purposes, an ox is simply "a cow with an education." In other words, an ox is a cow that has been trained to work in yoke. This training usually takes an average of about 4 years.

Oxen are often used for pulling heavy loads such as wagons and plows. This activity is a fun, engaging way to keep the group together and paced on the tour.

Procedure

1) When the group arrives, have a rope stretched out on the ground. After the general introduction, gather the kids and divide the group into two columns

with one column on each side of the rope but not yet touching the rope. All should be facing in the same direction with eyes on their tour guide.

2) Explain to the group that they are going to be "put to work" here on the farm today.
3) Ask the group who can guess what the difference is between a cow and an ox? Call on students as they raise their hands and take a few guesses. Then tell them that an ox is basically a cow with an education, but that it takes the ox about 4 years to learn what you will be teaching them in about one minute.
4) Teach them the 4 main commands:

Giddy up = move forward

Whoa = stop

Gee = go right

Haw = go left

5) Give them a quick "quiz" on those commands.
6) Then have the students bend down and pick up the rope, holding it with the hand that is closest to the rope. Let them/help them space themselves out comfortably so that they will be able to walk in this formation.
7) Begin the tour by saying "Giddy up!" and moving them ahead. Don't forget to keep using these commands as you move through the tour, in order to keep their interest.

At times when the group needs to break up, like to go through the Stroh-Dickens Barn, "unyoke" them by having them lay the rope down on the ground, and you can then "re-yoke" again when you come out of the barn.

Interpretation

Tilden's Original Six Principles

Freeman Tilden was the first person to formalize and record the prevailing thinking on the principles of effective interpretation. He did so in his book *Interpreting Our Heritage*, first published in 1957.

I. *Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.*

II. *Information, as such, is not Interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.*

III. *Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable.*

IV. *The chief aim of Interpretation is not instruction, but provocation.*

V. *Interpretation should aim to present a whole rather than a part, and must address itself to the whole man rather than any phase.*

VI. *Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program.*

(From Tilden, Freeman. *Interpreting Our Heritage*. 1977. 3rd edition. Chapel Hill: University of North Carolina, P. 9.)

Cable and Beck's Interpretive Principles

Expanding on Tilden's original six principles, Larry Beck and Ted Cable offer the following fifteen guiding principles for interpreting nature and culture:

1. To spark an interest, interpreters must relate the subject to the lives of the visitors.
2. The purpose of interpretation goes beyond providing information to reveal deeper meaning and truth.
3. The interpretive presentation – as a work of art – should be designed as a story that informs, entertains, and enlightens.
4. The purpose of the interpretive story is to inspire and to provoke people to broaden their horizons.
5. Interpretation should present a complete theme or thesis and address the whole person.
6. Interpretation for children, teenagers, and seniors – when these comprise uniform groups – should follow fundamentally different approaches.
7. Every place has a history. Interpreters can bring the past alive to make the present more enjoyable and the future more meaningful.
8. High technology can reveal the world in exciting new ways. However, incorporating this technology into the interpretive program must be done with foresight and care.
9. Interpreters must concern themselves with the quantity and quality (selection and accuracy) of information presented. Focused, well-researched interpretation will be more powerful than a longer discourse.
10. Before applying the arts in interpretation, the interpreter must be familiar with basic communication techniques. Quality interpretation depends on the interpreter's knowledge and skills, which should be developed continually.
11. Interpretive writing should address what readers would like to know, with the authority of wisdom and the humility and care that comes with it.
12. The overall interpretive program must be capable of attracting support – financial, volunteer, political, administrative – whatever support is needed for the program to flourish.
13. Interpretation should instill in people the ability, and the desire, to sense the beauty in their surroundings – to provide spiritual uplift and to encourage resource preservation.
14. Interpreters can promote optimal experiences through intentional and thoughtful program and facility design.
15. Passion is the essential ingredient for powerful and effective interpretation – passion for the resource and for those people who come to be inspired by the same.

(Beck, Larry, and Ted Cable. 1998. Interpretation for the 21st Century. Champaign, IL; Sagamore Publishing. Pp. 10 – 11.)

The Interpretive Approach

Interpretation serves a Purpose.

The program can and should support the mission and goals of the organization.

Interpretation is Organized.

Formal interpretation has an introduction, a body, and a conclusion.

Interpretation is Enjoyable.

People participate in interpretive programs because they want to, not because they have to, so they expect to enjoy themselves.

Interpretation is Thematic.

People tend to remember themes but forget the strings of facts.

Interpretation is Relevant.

People respond better to things that relate directly to their knowledge or experience as individuals or as human beings.

You make the difference.

Your passion and individual style can make the difference in how audiences respond.

Interpretation is Organized

Organizing your presentation increases the chances that your audience will retain some of what you present. An organized talk is easier to comprehend, allowing the interpretive audience to enjoy themselves rather than work at comprehending it.

A well-organized presentation includes a stated objective and:

1. **Introduction –** lays the foundation and lets the audience know what to expect.

2. **Body –** contains the main points you want to make in support of the theme (five or fewer).

3. **Conclusion –** provides closure and reinforces the theme.

Interpretation is Relevant

Personalize it

- Use first names
- Reference the self (think of the last time you …)
- Use "labeling" (people who enjoy nature …)

Make it meaningful

- Relate to universal concepts (love, freedom, hunger)
- Connect with something within the audience's frame of reference
- Bridge the unfamiliar to the familiar with metaphors, similes, analogies, and comparisons

Learning Styles

People learn differently. If you plan for a variety of learning styles in your presentation, then you increase the chance that your message will be accepted.

Auditory learners must hear the information.

Verbal learners must read the information.

Visual learners must see the information.

Kinesthetic learners must interact with the information.

By addressing a variety of learning styles in your program, you may also be addressing the special needs of people with disabilities. Remember that a program that relies on slides alone is meaningless for someone with visual impairment.

What's Hot, What's Not

As you gather your resource material, remember:

People love to hear…..

- Good stories
- Unusual facts (catfish have over 100,000 taste buds all over the surface of their bodies)
- Inspirational thoughts and quotes
- Gee-whiz information in terms they understand (over 4,000,000 bathtubs full of water go over the falls every hour)
- Things that evoke emotional or physiological responses (scary things, beautiful things, sad things, happy things)
- What's important to them

But don't really care much about…..

- Ordinary scientific data (this waterfall averages 3,694,524 cubic feet per second in flow)
- Doom and gloom predictions or rehashings of catastrophes (the ozone layer will be totally depleted, and the Earth will burn up in X number of years)
- The same thing they've heard or read at every other interpretive site or talk they've ever been to (65 million years ago, this area was covered by a vast inland sea)

What are some specific things you could incorporate into your presentation that someone would love to hear about?

Questioning Strategies

People enjoy being engaged in the program. One way to encourage their participation is to ask questions. A questioning sequence can be used to "pull" the audience through the program, allowing them to interpret their own observations.

Open questions: This type of question has no wrong answers. Use these questions early in the program to allow everyone the immediate opportunity to participate regardless of their experience or knowledge level.

What do you see as you look at the hillside?

Focusing or data-recall questions: Visitor recites a specific number, list, or statement. Use these questions to focus attention on specific data as a central point of discussion.

What are some things that are helping the log decay?

Interpretive or data processing questions: Visitor uses data to show relationships or analyze.

How does the wood strength or texture of these two trees compare?

Capstone or application questions: Visitor summarizes, predicts, theorizes, or applies principles to a new way of thinking.

How would this area be different if the forest had not burned?

Response Strategies

The way you respond to questions you've asked set the tone for your interpretive program. If you are welcoming and receptive to visitor comments, more discussion is generated and the likelihood of success is enhanced.

Questions asked by visitors are also a valuable source of feedback. If you analyze those questions, they can tell you if your message is being communicated effectively or needs further clarification.

Responses can be classified in three ways. The most appropriate response will be dictated by the individual situation and the personal style of the interpreter.

Accepting response is always the ideal:

- **Passive acceptance –** nodding your head, saying okay without judgment or evaluation
- **Active acceptance –** expressing your understanding of what the visitor is saying ("So you're saying that …")
- **Emphatic acceptance –** expressing your feelings as you show that you understand the visitor's response ("I can see you're upset by the litter. So am I.")

Clarifying response clears up what the visitor is trying to say:

- Could you explain what you mean by "expansion?"

Facilitating data supply the needed information in any one of a number of ways:

- Provide an opportunity for discovery by themselves
- Serve as a data source
- Use other audience members
- Refer to other sources
- Make materials for the visitor to determine the answer

Silence is Golden. Don't rush to supply a response. Give the audience time to think, allowing up to fifteen seconds before you jump in. Studies have shown that the longer you wait, the more in-depth the response you receive.

Your Voice

A good speaking voice is:

- Expressive
- Natural
- Pleasant
- Vital

To help develop your most effective speaking voice, work on these items:

Breathing -- Use short sentences to allow natural breathing space.

Pitch -- Vary the tone to avoid monotones or annoying patterns.

Vocal Climax -- Plan a dramatic crescendo or whisper for emphasis.

Pronunciation -- If you don't know it, look it up and practice.

Enunciation -- Keep your words clear so everyone can hear.

Rate -- Vary the rate according to the material.

Quality -- Strive for mellow tones – avoid harsh, nasal, or quavery voice.

Pause -- Use dramatic pauses for emphasis.

Volume and Force -- Avoid shouting at your audience or using explosive force.

Nonverbal Communication

Body language can speak much louder than your voice. Practice your presentation in front of a mirror or on videotape to help develop a body language as pleasant as your voice. Watch for the following:

Attitude – Avoid deep sighs, frowns, clenched teeth, and furrowed brows. They all say that you'd rather be somewhere else. Smile – it lets your audience know you enjoy what you're doing.

Posture – Too stiff, and you'll seem uncomfortable. Too slumped, and you'll seem bored. Better to stand up straight, but relaxed, to give your audience the impression that you have the confidence to lead them.

Distracting hand or body movements – Keep hands in a natural position. Avoid clasping your hands, wringing your fingers, and scratching your head or chin (or other body parts). Don't stand rooted to one spot, but avoid pacing or weaving (shifting weight from one foot to the other).

Using the body to illustrate a point – Act naturally and your body will automatically help you illustrate points in your presentation without seeming contrived.

Dress and hair – Be clean and neat in your overall appearance. Keep hair out of your face so your audience can see your expressions. If you wear a uniform, wear it properly. If you don't wear a uniform, be sure your clothes are appropriate to the occasion and clean.

Jewelry – Keep jewelry and watches simple so they do not detract from your presentation.

Cell phones – If you carry a cell phone, please turn off the ringer or turn the phone off completely.

Ten Guidelines for Handling Visitors

1. Do not frown or scowl at visitors.

2. Ask pleasantly if you can be of service to visitors.

3. Make yourself a storehouse of information for visitors, and cheerfully share your knowledge with them.

4. Do not bluff or attempt to deceive when asked a question for which you do not know the answer. It is okay to simply say, "I don't know." At that point, a good interpreter will at least offer to find out the answer, and follow up with the visitor if they so wish.

5. Answer the same question once again with a smile even though you're exhausted and may have answered it 100 times already that day.

6. Be neat and clean. It shows respect for your visitors.

7. Be as prompt as possible when greeting and serving visitors.

8. Happy children mean happy parents. Do what you can to keep them all happy, and your workplace will benefit.

9. Encourage visitors to stay and enjoy themselves, here and at other sites on their journey, so that the entire system benefits.

10. Send visitors on their way with smiles – on your face and theirs.

Site-Specific History

The Lohr/McIntosh Farm Story

Located five miles northwest of downtown Longmont, the historic Lohr/McIntosh Farm and many of its structures were built and occupied continuously by one pioneer family until Boulder County purchased them in 1985. Through the decades, the McIntosh/Lohr family worked hard to keep the farm together. They toiled and lived on the homestead for 117 years, contributing their labor to the agricultural development of the St. Vrain Valley. Over multiple years, Boulder County Parks and Open Space has been working to preserve the farm as open space and establish the Agricultural Heritage Center on the 265-acre property.

Born on May 12, 1837, in Mantua, Ohio, George R. McIntosh moved to the state of Wisconsin as a young man, with the hope that the climate would benefit his asthmatic condition. There, he taught school for two years and, later, clerked in a store in Sheboygan, Wisconsin. In the spring of 1860, at age 23, George McIntosh left his home in Sheboygan to seek relief from his asthma in the high plains of the American West. With a team of oxen and a wagon, he started out alone on the long trek to the Nebraska Territory. The trip was not an easy one. George's days were spent walking behind the wagon, and, since he was unable to lie down without becoming breathless, his nights were spent sitting up in a chair in the covered wagon. However, upon his arrival to the drier climate he found some relief from his serious asthmatic condition.

The land beyond the 100th meridian was ideally suited to George R. McIntosh's ambition, drive and talents. In succession he was a farmer, a miner, a soldier, and overland freighter and again, a high plains farmer. He first claimed a 160-acre farm in Weld County, which later became the town site of Greeley. That same winter, he mined on Quartz Hill near Central City.

Observing that hay was a scarce commodity in the mountain mining camps, McIntosh worked the summer of 1861 in the Cache la Poudre Valley, near Fort Collins, putting up hay to haul to the camps. The hay contracts yielded him sizeable amounts of cash until the Civil War broke out.

In the fall of 1861, McIntosh enlisted in Company G, First Colorado Cavalry and remained with the volunteer infantry until his honorable discharge in the autumn of 1864. Then George returned to his farm near Fort Collins for the winter.

In 1866, McIntosh began operating a freighting operation on the Overland Stage Route between the Missouri River, Denver, and Fort Laramie. As a teamster he hauled whatever goods were needed as well as supplies to U.S. Army posts located along the Overland Trail. At

this time, the westward advance of settlement was proceeding at a rapid pace, and the Great Plains were inhabited by Native Americans who were determined to resist encroachment on their hunting grounds. Because of the constant threat of an Indian attack, McIntosh made his bed in a hidden spot some distance from his "prairie schooner" each night. He also learned to speak Arapaho fluently, in an effort to survive along the trail.

After a year of freighting McIntosh preempted his 160-acre farm near Fort Collins and farmed there for another year. But he had another place in mind. For centuries buffalo had roamed and grazed on the grasslands near Longmont, and the thick sod had never been turned by a plow. When McIntosh freighted through the area he would often stop and pasture his ox team in the natural drainage area that is now McIntosh Lake. Years later, he told his grandson Shorty Lohr, "grass grew high enough to hide a buffalo bull." As a result, this was the land that he finally claimed for his permanent home.

In 1868, George built a log cabin and went out with an ox and plow to improve his newly purchased homestead near Longmont. During the first few years of farming and running a cattle operation he was assisted by a young African-American man who helped drive the ox-plow to break the sod for wheat farming. Jim took his departure when he got married. On July 21, 1872, George McIntosh married Amanda Jane (Lee) Noble, a young widow from Iowa. Like millions of other western homesteaders in the 1870s, George and Amanda were optimists. Life looked bright, even from their dark, tiny cabin.

Soon the McIntosh's settled into a routine common to most farmers of the time. They ate what they raised. George imported apple trees from his home state of Ohio, starting a long tradition of annual crops in the St. Vrain Valley. They continued to operate the cattle operation and grow feed crops in the open fields. By 1883 Amanda had given birth to four children – Mark, Walter, Minnie and George, Jr. After Amanda's father, Joseph Lee was killed by Indians in Montana, her mother, Malinda Lee and younger brother James came to live with them in the small log cabin. This prompted George to build a large Victorian frame farmhouse in 1878 to accommodate his growing family. (The house still stands today across the road to the north of the McIntosh barn) Mrs. Lee died early in 1879 and was buried in the Pella Cemetery. McIntosh donated the land for the cemetery that lies just south of today's Hygiene Road.

By 1880 George had added nearly a thousand acres to his land holdings. He built the large McIntosh barn in 1881 to store his hay harvest, thrash grain, stable horses, milk cows, and provide shelter for calving. During this prosperous time, the *Longmont Ledger* newspaper referred to the farm as the "McIntosh Ranch."

Through the succeeding years McIntosh sold portions of the farm to land seekers and divided the rest among his three sons, son-in-law and daughter. His son Walter worked his portion of farmland for several years before moving to California. George McClelland Lohr purchased the original homestead parcel from McIntosh after marrying Minnie McIntosh on September

26, 1899. After the birth of their two sons, Neil R. "Shorty" and Harry Galen, the Lohrs built the 1909 farmhouse on the site of the first log cabin. The Lohrs farmed with horses. They grew feed crops, raised short horn cattle, and kept Jersey and Holstein milk cows. They also raised chickens, kept pigs, and sold eggs, milk and butter. After the turn of the 20th century, they raised produce (beans, peas, etc.) to sell to the canning factory and sugar beets to sell to the sugar company in Longmont (they dumped the beets in Hygiene where they were shipped to Great Western Sugar in Longmont). During this time, the McIntosh Lake was enlarged to cover 263 acres, providing a reservoir for the Highland Ditch to increase water storage for the new sugar beet industry. Water was needed to irrigate the beet fields.

After selling the farm to the Lohrs, Mr. and Mrs. McIntosh built a home at 714 Kimbark St. in Longmont, where they resided for the remainder of their lives. After the death of his wife on October 28, 1913, George McIntosh continued to live in town and walk the five miles to visit the Lohrs several times a week. Walking remained one of his great pleasures, even after walking the great distance from Wisconsin to Colorado behind a covered wagon. He continued his long walks until his death on October 22, 1924. Local residents affectionately called him "Mr. Mac."

Neil R. "Shorty" Lohr never married and continued to live and work on the farm. The Lohr's younger son, Harry Galen, later became the vice-president of the First National Bank of Fort Collins. George Lohr died on January 31, 1953, at the age of 88. After his father's death, Shorty gave up farming to care for his ailing mother. During these years the Lohrs leased their land to dairy farmers. Minnie Lohr passed away on October 19, 1964, at the age of 87. For a while, Shorty worked as a scenic tour bus driver to Rocky Mountain National Park. In 1964 he took a position with the Boulder County Road Department, where he worked until his retirement in 1974. In 1985 Shorty sold the family farm to Boulder County Parks and Open Space and donated $250,000 to establish an educational center on the property. Shorty Lohr died on Sept. 6, 1991. He was 91 years old.

George McIntosh's Army Service

When he was 24 years old, George McIntosh enrolled in the First Colorado Regiment of Volunteers (variously known as the First Regiment of Colorado Volunteers and the First Cavalry of Colorado) on October 10, 1861. He was to "serve Three years or during the war" (McIntosh's discharge certificate) which we know he did because the same discharge papers show that he was released from duty on October 27, 1864 and paid in full on the following day by the paymaster, J. Fillmore.

The Regiment had been organized by William Gilpin, Colorado Territory's first governor and the men in the regiment were dubbed "Gilpin's Lambs." Lambs they were not, as we will soon see! Gilpin was concerned about the presence of secessionists who had arrived in Denver City after the First Battle of Bull Run at Manassas, Virginia on July 21, 1861 and who seemed to be

plotting to seize the Territory. (Holister, p. 5) Additional men from southern states, here to pan for gold, increased Gilpin's worries. "More than forty Confederate sympathizers were held prisoners at Denver for months to prevent them from joining the armies of the South." (William MacLeod Raine, Introduction to Hollister's book) The original commander was Colonel John P. Slough, but he was replaced by Major John Chivington who was later to play a significant role at the Sand Creek Massacre in November of 1864. Two hundred men from the First Colorado were also at Sand Creek, but it is unlikely that George was among them. Although there were no impediments to his re-enlisting, there is an "Oath of Identity" document dated December 3, 1866 that notes his 1864 discharge date and makes no mention of any further service in the army.

McIntosh may have believed, as did many of the First's recruits (recruited in Denver, Gregory, Idaho, and a few other places), that he would be seeing action in Civil War battles. Certainly the McIntosh brothers sided with the Union forces. Letters in the family's possession, dating from 1862-64 indicate that Newel saw action with an Ohio regiment at Cumberland Gap, etc. The First Regiment's young soldiers were eager for action and chafed under Camp Weld's (along the Platte two miles from Denver City) idleness from August 26 – December 14, 1861. Although the First Colorado maintained camps in other Colorado locations, we know that George's regiment was barracked at Camp Weld. They soon developed an unsavory reputation as "chicken thieves, jayhawkers[1], turbulent and seditious, a disgrace to themselves and the country." (Hollister, p.7) Raine's introduction to Hollister's book elaborates: "The members of the First Colorado Volunteers were wild, gay rollicking tempestuous sons of the frontier, hard drinkers and hard fighters, with little respect for formal law, but with an innate sense of fundamental justice. They were individualists and at first completely undisciplined. Since they were ill-clothed and ill-fed due to lack of funds, they looted Denver hen roosts and smoke houses, broke into saloons to get whiskey and champagne, and in the protesting presence of storekeepers helped themselves to clothes." One wonders if McIntosh's asthma made him one of the less boisterous men – but perhaps not. If we can believe heights listed for some of his fellow soldiers, it is clear that George was among the smaller of the men. His discharge papers record him as being just 5' 4.75" tall.

Eventually the Colorado First organized itself into eleven companies, A – K. The blue-eyed, fair-haired George, a private, found himself in Company G, commanded originally by Captain J.W. Hambleton. From the very beginning discipline seemed to be a problem for the Colorado First. Added to the lack of action were extremely poor rations, resulting in the hospitalization of numbers of men and, as the winter wore on, a nasty wind made even more unpleasant by the lack of adequate clothing. No one was very happy. The men began to believe that they would merely be functioning as a sort of "municipal police" force (Hollister, p. 31) and that

[1] According to Robert Hendrickson's Encyclopedia of Word and Phrase Origins, "jayhawker" is a 19th century slang word for a bandit and may have influenced the naming of a group of Kansas Free State pre-Civil War abolitionists and, of course, eventually the nickname for all Kansas.

any action they saw would be limited to Denver City and its immediate surroundings. Even more, the men felt that they did not really belong to a legitimate army and had little chance of promotion. Many attempted to desert, only to return to the company after a few days. It was during this period of unrest that Company G's Captain Hambleton was "cashiered." (Hollister, p. 33) – Hollister suggests that Hambleton's dismissal resulted perhaps from mishandling of the desertion issue, although it is not entirely clear from the text exactly what happened. Company G's Lieutenant W.F. Wilder was then promoted to Captain.

Then they received word from Mexico of a Texan invasion and got their orders to march south. At this point it is rather difficult to decipher Hollister's material and the exact dates on which events occurred, but what we known for certain is that the Colorado Regiment eventually did see action in New Mexico in the spring of 1862: on March 26 at Apache Canon; March 26 – 28 at La Glorieta Pass; and April 15 at Peralta. (Maul) The companies were armed with Springfield rifles. Brief descriptions of the battles follow.

Apache Canon: Approximately 400 strong, the Colorado First entered the canon and almost immediately encountered two howitzers trained on them by the Texans. Major Chivington arranged his infantry troops and Captain Samuel Cook's cavalry "awaited orders" (Hollister, p. 62). The Colorado First's men outflanked the enemy and drove relentlessly through the canon, routing the Texans. 75 Texans were taken prisoner and approximately 16 killed and 30 – 40 wounded. The Colorado First sustained five deaths, 13 wounded and three missing (Hollister, p. 66). Lack of water and the onset of darkness prevented further action.

La Glorieta Pass: is located at the southern end of the Sangre de Cristo Mountains, southeast of Santa Fe. Approximately 200 – 300 Confederate Texans under the command of Major Charles L. Pyron were camped at one end of Glorieta Pass. Chivington and his troops launched their attack on March 26, but were fired on by the enemy, so reassembled into two groups that "caught the Rebels in a crossfire." (American Battlefield Protection Program Website, "CWSAC Battle Summaries") Utilizing raking gunfire they routed the Confederates who were captured by the Union cavalry. There was a lull in the fighting on the 27th as both sides received reinforcements: Col. John P. Slough of the Union side arrived with about 900 solider while the Rebels benefited from the advent of Lt. Col. William R. Scurry and his approximately 1,100 troops. On March 28th the Rebels "advanced down the canyon" (ibid.) and were believing that he and his men had prevailed. However, unbeknownst to him, the Colorado First under Chivington had laid waste to the Confederate supplies and animals, forcing a Confederate retreat to Santa Fe and, ultimately, to San Antonio, Texas. "Glorieta Pass was the turning point of the war in the New Mexico Territory." (ibid.) According to Hollister, Company G lost four men and give others were wounded. George was not among the latter.

Peralta: At the time of the attack, Peralta was a tiny village consisting of "a two mile stretch of adobe houses, thick adobe fences, raised ditches, and groves of large cottonwood trees," all of which formed natural fortifications (Manley). The First Colorado camped near Peralta where

about 500 of Colonel Thomas Jefferson Green's Fifth Texas Mounted volunteers had bivouacked. The rank and file of the First Colorado soldiers, knowing they would have the element of surprise in their favor, wanted to attack immediately, but were prevented from doing so. Instead, they attacked a Confederate wagon train containing supplies and defended by a group of Texans armed with a "mountain howitzer." (Manley) Eventually, General Canby sent Chivington and Colonel Gabriel with their men to the north and west "to prevent reinforcements." (ibid.) Even though he was outnumbered, Green hung on until at about 2pm a dust storm brought the Battle of Peralta to an ignominious close as the Confederates retreated.

The First Colorado was mustered out on November 18, 1865 (Maul), slightly over a year after George McIntosh ended his service with them.

Sources consulted:

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Colorado Territory Civil War Volunteer Records
Hollister, Ovando J. Boldly They Rode: A History of the First Colorado Regiment of Volunteers. Introduction by William MacLeod Raine. 1863, 1949
Maul, Allen. Boulder County Veterans in the Civil War. 1982

Piece written by volunteer researcher, Robin A. Branstator

George McIntosh and the Grand Army of the Republic, McPherson Post, Longmont

According to his obituary, George McIntosh was "an active member of the McPherson Post, G.A.R., and its oldest member." He qualified for membership because he was a veteran of the Civil War.
The G.A.R. or Grand Army of the Republic was organized by Dr. Benjamin F. Stephenson on April 6, 1866 partially in response to the apparent need for an organization that would reunite men who, despite varied backgrounds and geographical origins, had formed strong bonds during the terrible days of the Civil War and who felt at loose ends following the end of the war. Only honorably discharged veterans of "the Union Army, Navy, Marine Corps or the Revenue Cutter Service" ("Brief History of the Grand Army of the Republic") were eligible to join and they must have served sometime between April 12, 1861 and April 9, 1865. George McIntosh had enlisted on Oct. 10, 1861 and so qualified for membership.

The G.A.R. was not just a social club. It also aimed to assist veterans, both black and white, and their families with such areas as employment, pensions, and so forth. Eventually it became a force to be reckoned with in American politics: five members of the G.A.R. became President of the United States "and, for a time, it was impossible to be nominated on the Republican ticket without the endorsement of the G.A.R. voting block." (ibid.) One of their first acts as an influential social body was, in 1868, to successfully push for the institution of Memorial Day.

The structure of the G.A.R. was as follows: geographically by "departments" (usually a state or combination of states) and then by "posts." Thus, George belonged to the McPherson Post within the Colorado and Wyoming Department. The name McPherson would have belonged to a deceased person. Each post and department had a Commander and junior officers. Members wore specially designed uniforms and insignia (see illustrations). New members were elected using the method of voting with white and black balls. A rejection could only come about if more than one black ball was cast. This voting procedure and many other rituals were adopted from the Masons.

Each year the Department held an Encampment lasting several days. There was also an annual national Encampment. From Sept. 4 – 9 of 1905 Denver hosted that year's National Encampment. The program for that event (Carnegie Library, file #332-3-4) notes that the Colorado-Wyoming Dept. had 57 posts with a total of 2,217 members. National membership in the organization was strongest in the 1890s when it boasted 490,000 in its rolls. The Longmont McPherson Post had 75 members in 1909 and 59 in 1916. (Carnegie file #332-3-20)

The Department of Colorado and Wyoming held its 33rd Annual Encampment in Boulder on May 14 – 16, 1912. Although George was not in good health and Amanda was soon to die, perhaps he attended the event. There were meetings at The Boulderado Hotel and the Opera House, campfires, parades, concerts given by local elementary school students and others, and excursions to the Switzerland Trail, "places of interest in the city" (Carnegie file #332-3-22), and street car rides. Talks included "A Message to the Comrades," "The Boys of '61," "What Is Best for the G.A.R. Man," and "Auld Lang Syne."

Other organizations spun off the G.A.R., such as The Sons of Veterans of the Civil War and Ladies of the G.A.R. One had to be related in some way to a Civil War veteran to become a member of one of these groups. We do not know if Amanda belonged.

As the Civil War veterans died, the G.A.R. began to weaken. In 1949 the six surviving members dissolved the organization permanently and in 1956 the last surviving member died.
Piece written by volunteer Robin A. Branstator

The Stroh-Dickens Farm Story

On May 1, 1859, 16-year old William Henry Dickens and his stepfather Alonzo Nelson Allen arrived in the Nebraska Territory by horseback to mine for gold. Dickens and Allen were "pioneers" in the traditional sense of the term. Taking their chances with potentially hostile Indians, they decided to settle in the St. Vrain River Valley. They erected the first log cabin in Burlington, the first town along the St. Vrain. Soon, the cabin served as "Mother Allen's Hotel and Stage Stop." In the early years, Dickens freighted for the Overland Stage Company and served as the town marshal of Burlington.

The Homestead Act of 1862 catered to white settlers like Dickens and Allen, who were neither members of an exclusive group, nor connected, nor wealthy. However, William Dickens had been born on a ship at sea by English parents, he was required to become a U.S. citizen before he could file on a homestead claim. In 1863 both Dickens and Allen successfully filed on two "quarter sections" of 160 acres each. (This land would become the center of the Stroh-Dickens farm.)

In 1864, Dickens took a break from working his land to enlist in Company D, 3rd Colorado Cavalry. He was concerned about the increase in clashes between the Native Americans and the newly arrived white settlers. On November 29 that same year he participated in the Sand Creek Massacre, also called the battle of "Big Sandy." (Over 200 men, women and children, mostly Native American, were killed in this tragic chapter of Colorado history.)

Following his time with the Cavalry, Dickens pursued various activities and business opportunities. Through his ambition, luck and talent he acquired not only wealth but the recognition and respect of his peers as an early Pike's Peak gold rush prospector, an overland freighter, western lawman, Colorado militia soldier, a businessman, banker, farmer, cattleman and horse rancher. By 1881 Dickens was Longmont's leading promoter and businessman. He built the Dickens Opera House that same year on the corner of 3rd and Main Streets. He was founder of the Farmer's National Bank and the Farmer's Mill & Elevator Company.

On December 13, 1886, William married Ida Kiteley from Walworth County, Wisconsin. Ida gave birth to five children: William A. (1877), Rienszi (1880), Mary (1882), Artalissa (1886) and John (1888). The family stayed very busy with an extremely successful farm, and William was profiled as "one of the wealthiest and most influential men of Boulder County" in the *Portrait and Biographical Record of Denver and Vicinity, Colorado*, published in 1898. The short biography of Dickens briefly described his 640-acre farming operation:

> "His land is well-watered by a splendid set of ditches, etc., and improved with four good residences and numerous barns and other buildings…Dickens has dealt extensively in stock, has made a specialty of high-grade shorthorn cattle and blooded Percheron-Norman horses, and brought a dozen or more of brood mares here some

> years ago….raising in the neighborhood of ten thousand bushels of wheat a year, he sells a portion of it, as he grows four thousand or more sacks of potatoes a season, he ships the product to Denver in car-load lots. He owns a thresher, self-binder, and all kinds of labor-saving machinery, and is thoroughly abreast of the times in every way."

William "Will" Arnette Dickens took over the operations of the Dickens farm after his graduation for the Colorado Agricultural College (later CSU) in 1898. Shortly after his marriage to Hanna Marie Johnson in 1900, Will and his father built the large barn (now red) that now sits on the Lohr property. They also built a Victorian farmhouse, where Will and his wife lived. The couple only lived on the farm for six years, but continued to lease the property until its sale in 1928. The senior Will Dickens died under mysterious circumstances on November 30, 1915, when an unknown assailant shot him in his Longmont home.

Conrad Stroh emigrated from Russia around 1895, and worked on the railroads, continually moving westward towards the Rocky Mountains. In Colorado, he worked in coalmines as well as sugar beet fields before finally acquiring his own farm in 1913. By 1928 he had enough money to assist his son John in purchasing the Dickens farm. John and his wife Frieda, grew sugar beets, barley, corn, and alfalfa and ran a cattle-feeding operation on their 160-acres. They also raised three children on the farm: Shirley, J. Colin, and JoAnn. Colin took over the farm's daily operations in the 1950s. In 1955, he married Jane Hardy.

Colin and Jane Stroh proceeded to raise four children on the farm: Clinton, Emily, Timothy, and Julia, while Colin's parents continued to reside in the c. 1900 Dickens farmhouse. His mother, Frieda died on July 12, 1968, and his father John passed away on April 30, 1985. In the late 1960s and through the 1970s the Stroh family began selling portions of the farm. In January of 1992, the Stroh family moved off the farm and sold the final parcel of 11 acres to the Federal Aviation Administration (FAA). The Boulder County Parks and Open Space Dept. recognized the historic value of the property, and negotiated the purchase and relocation of the barn to the Lohr property.

The following section details the architecture, building methods and materials used to construct the remaining structures at the Agricultural Heritage Center.

Structures of the Lohr/McIntosh Farm

The McIntosh Barn

George McIntosh built this multi-use barn in 1881, almost certainly with the help of neighbors and perhaps a few hired hands. The Single-Crib barn measures 48′ x 28′, and the shed extensions to the east and west measure 36′ x 16′ each. The east side shed has elevated platforms used for calving, while the west side extension has stables that housed mules and horses. The front of the barn on the south side has an extended bay that allows access to the lower level, where six milking stations were located. The gabled roof is sheathed with wooden shingles, and according to Shorty Lohr, had been re-roofed at least twice. In the center of the roof, a square cupola with Victorian-style louvers provides ventilation. The cupola is capped with a gabled ridge board to protect the roof peak's opening from rain and snow. Vertical rough-sawn wood planks make up the walls of the barn, and these boards have never been painted, nor were there ever any effort to make the walls completely weather-tight. This may have to do with the barn's timber frame, which has an unusual post-and-beam construction that utilizes mortise-and-tenon joints that allow the entire barn to flex and sway in the wind.

The barn is set on an original dry-laid fieldstone foundation, approximately eighteen inches deep, and the north side is cut into the slope of the hillside. The central foundation walls are seven feet high, providing support for the structure above, as well as retaining earth. The lower floor is made of rough-formed, poured concrete, while the floor to the main crib is made of one-inch thick planks on two-inch thick joists.

From the milking area, you can see the cross-braced ventilation shaft that runs to the ridge of the roof. This shaft was also used for pitching hay to the lower level.

The barn has retained most of the original hardware used for hinges and latches: several of the original barn doors have latches fashioned out of wood and leather straps. Large wagon door openings can be seen on each side of the barn, allowing access for livestock feeding and loading. Two non-original openings have been cut into the upper portion

of the main crib on the south side; beneath these openings a ramp runs down to the barns lower level.

The main interior crib also contains a wooden grain box, a heavy wood-plank threshing floor, the ventilation shaft from the lower level, and a small mow (hayloft) accessed by a wooden ladder.

Today this building is on the National Register of Historic Places. A grant from the Colorado Historical Society's State Historic Fund allowed for major restoration on the barn in 2002.

The Loafing Shed

This south-facing open structure just west of the McIntosh Barn was used for temporary shelter from the elements, and storage for tools, horse tack and implements. Extensive smoke residue found on the interior during its 2000 re-roofing also indicates its possible use as a place for forging horseshoes or branding cows.

It is 14' x 32' and has an earthen floor and a poured concrete foundation. Its three walls are boarded with strong vertical wood planking nailed to sturdy 2" x 2" decking and rafters. The roof was originally made of matched lumber, and now is covered in corrugated sheet metal. There are no windows in the three walls; three open bays on the south side are separated by round log supports. Although open to the elements, this structure was built to be permanent, remaining year to year. Besides a mostly new roof, it pole supports were re-stabilized in 2000.

Blacksmith Shop

The blacksmith shop was built inside the loafing shed in 2008. Using one bay of the loafing shed, the blacksmith shop serves as a space to conduct live demonstrations during special events and programs. Walls on the south and east sides can swing open to act as windows.

The Cattle Loading Chute

This chute was moved to the site from the Peppler Farm on Highway 66 east of Main St. sometime after this property was leased to the Dirks Family in the 1950s for their dairy operation. Farmers still use cattle chutes to channel cows into trucks when it is time to take them to market or to other pastures farther away.

The chute was a common feature of any farm raising cattle, and the particular designs would be customized to the location and needs of each individual farm. The chute was always connected to some kind of larger, fenced-in feedlot.

Windmill

The fan for this feature is an Aermotor brand. In 1888, the Aermotor Co. of Chicago was the first company to adopt the all-steel design, rising to dominance in the industry. The company was able to furnish towers from stock as high as 80 feet. Parts of this windmill came from the Waneka property. The rest came from a windmill dealer New Raymer, CO.

Livestock Pens

These pens house farm animals typical of an early 20th century farm in Boulder County.

- The chicken coop located just west of the garage was constructed in 2002.
- The pigpen houses two sows during the operating season. Boulder County Youth Corps built this structure during the summer of 2003.
- The corrals are used for cattle and horses during the operating season. The fencing was built in 2007.
- The sheep pen is used to house sheep and goats. The pen and structure were built by Boulder County Youth Corps during the summer of 2009.

Feed and Tack Shed

The feed and tack shed was originally a granary that sat on a farm near Quicksilver Road and County Road 1 in eastern Longmont. The granary was moved to the AHC and modified to its current state in 2007. It stores feed (hay and grains) for livestock as well as livestock related equipment and tack.

The Stroh-Dickens Barn

This massive barn was built by Longmont pioneer William H. Dickens and his son William A. Dickens circa 1900. Like the McIntosh barn, several neighbors would have been involved in the final raising of the structure. The barn is a typical example of a nineteenth-century "Western Prairie Barn." The Victorian design of this building incorporates many vernacular aspects - that is, the building exemplifies the style and traditions of the local area. Local techniques, materials, and weather concerns fashioned the design of this building.

The original Dickens homestead was 640 acres, requiring a large barn for hay and livestock. The massive, 46′ x 37′ structure has a post-and-beam construction and is fully timbered with mortise-and-tenon joints secured by pegs (also called treenails or "trunnels"). This design affords some flexibility, much like a tree, in response to high winds. The walls are made of 12-inch wide pine planks, indicative of the remarkable size and regularity of the timber yielded from local forests. The planks are laid vertically, to prevent water from collecting on top surfaces and rotting the wood. Unlike the McIntosh Barn, battens seal the spaces between the wall planks, making the building weather- tight for livestock. The gabled roof originally had wooden shingles, which have been replaced more recently with green asphalt shingles. The ridgeline has an ornate cupola, with Victorian-style louvers on two sides. And the most prominent feature of the roof is a large hanging gable or "hay hood" that provided cover for hay as it was unloaded on the outside of the barn.

The building has two distinct levels: the lower floor had stalls for horses, stanchions for cows, and space for farm equipment and the upper floor was a high hay mow. An interior hay track extends from the hay hood to the rear of the hayloft. Along this track a trolley or crane could move the length of the barn, and would be fitted with a hayfork, a device for unloading the hay.

The barn originally was set on a coursed sandstone foundation with 2" x 10" pine planks for flooring, but these elements were lost in the move to this site. The building now sits on a modern, cement-reinforced foundation. While windows of various sizes provide light and ventilation on south and west faces, the northern face has an enormous lean-to attachment that has been renovated as a meeting place by BCPOS, complete with modern, composting restrooms. The eastern wall is equipped with a huge door large enough for a loaded wagon to pass through. The size of the door precluded the use of hinges; the area necessary to swing a door of such size was too large to be practical, and the weight of the door would almost certainly have ripped the hinges of the day from their moorings. By attaching the doors to a metal track, the farmer could slide the door open and avoid the dangers of the door being caught in the wind. There are four "Dutch" doors, whose top and bottom swing independently. This design provides light and ventilation but restricts animal movement when necessary. These doors lead to the side aisles, where horses and cows were housed. The threshing and wagon storage was in the center of the barn.

The Cement-Stave Silo

As quoted directly from the Interpretive Wayside Panel:

"Early silos of wood, stone, and concrete can still be found in Boulder County. Silo is a French word for pit - - many early European silos were dug deep into the ground. Historically silos were used to store green fodder, like dried and cut corn, as airtight as possible to keep it from spoiling. The preserved silage fed livestock until next year's crop was available.

Silage was loaded into the silo's top by a steam-powered auger or pneumatic blower. The center of the pile and its heavy weight compacted itself, but the pile's edges had to be spread evenly with a pitchfork and stamped by foot. This was very dangerous work.

Around 1900, cement stave silos like this 44-footer became popular locally. Its stacked blocks, held together by iron rings, allowed great stability. In 1910, a new technique using concrete forms (not blocks) was introduced into Boulder County, the first of its kind in Colorado.

With the beginning of World War I in 1914, the number of silos in the County grew tremendously. They stored feed grains needed by the horses and mules that hauled military equipment into battle, as well as the cattle needed to supply milk and meat for the soldiers overseas. Many of the European soldiers fighting were themselves farmers drawn away from their own farms.
Because of modern mechanization, more efficient storage techniques, and the fact that much of the region's livestock production has shifted to counties to the east, most silos in Boulder County today sit empty."

Someday a silage filling display (with steam powered tractor, belt, silage filler/blower and fill pipe to the top) will complement the existing Interpretive Wayside Panel.

The "Bone Yard"

Most farms still around today have discarded farming implements that historically provided scrap metal and wood parts for repairs need to fix various machines and structures around the farm.

Irrigation Ditch

This ditch is a private lateral of the Longmont Supply Ditch. It is piped from under Highway 66. According to Shorty Lohr, this property historically had "pretty good" water rights.

The Granary

This structure was used for storing feed grains and is original to the site. It was loaded through the small upper openings by a long pole called an auger.

It measures 10' x 16.5' and has a windowless, wood plank design that sits on elevated skids helping it survive the periodic flood irrigation needed to water the hay field below, this made possible by the private lateral of the Longmont Supply Ditch that runs through the yard. This structure was built to be much more weather-tight, and to keep out rodents. The roof is corrugated sheet metal over wood decking. The south wall is also covered with corrugated sheet metal. On the north side, a metal side-hinged, horizontal wood plank door opens to granary's heavy side plank floor. There is a partial wall partition remaining inside as well.

Foundation remnants of a later (post 1950) round cylindrical steel granary are visible on the ground between the granary and honey house. As granaries like that become unstable when empty, supposedly the wind collapsed it sometime before 1987.

Honey House

The honey house is an exhibit space designated to tell the story of beekeeping and honey harvesting. This space will continue to evolve with interpretive material and equipment displays.

The building was formerly an unpainted granary known as a "studs out" design and dates circa 1949. It was moved from the Waneka property in Lafayette in 2001.

The Garage

The wooden, one-story auto garage was built in the 1920s and originally measured 12' x 16' (It was enlarged in the 1940s as cars got much larger). From family records we know the Lohrs owned a 1916 Dodge. There were no windows cut out of the simple design of corner posts and horizontal weatherboards with a wood-shingled gable roof. The structure sits on a new (2000), improved concrete foundation. On the west side, a pair of vertical wood plank doors hang on metal-strap hinges. According to Shorty Lohr, during the 1930s wind caught the door one day and he came very close to losing an eye.

The Lohr Farmhouse

George and Minnie Lohr built this structure in 1909. The one-and-one-half story farmhouse is a good example of a "Homestead" house of the American Builder style. Mail order house designs were very popular during the period. This style of farmhouse was typically tall, narrow and deep with a pitched roof and a gable front (A gable is a part of a roof design that slopes downward in two parts at an angle from a central ridge, so as to leave a gable at each end).

The simple 26' x 24' farmhouse boasts a front facing gable, and the roof 's fabric is asphalt single. The doors and windows are surrounded in a "Queen Anne drip mold," and the single-pane, double-hung windows are now covered by modern storm windows on the exterior. The home's original wood-paneled front door boasts a delicate, decorative "egg and dart" molding, and opens onto a 20' x 7' screened-in porch. The original screens were missing, but BCPOS installed screen framing consistent with the original style.

The first floor interior boasts a living room, dining room, modernized kitchen (c. 1950 design), a bedroom and small walk-through closet. An enclosed stairwell accesses two identical second-floor bedrooms, with closets. Original hardwood floors, woodwork, doors, hardware and light fixtures have been retained in the homes interior. The house also has an interior fireplace (?) that served as the primary heat source during cold weather.

In 1999, a ramp for handicapped access was installed, and an enclosed porch and bathroom were renovated by BCPOS in preparation for public access to the home. Today the house is home to the site's Office and Volunteer Room, with its downstairs

furnished how it may have looked during the family's first 10 years living there, from 1909-1919.

Well Pump

As the original cistern/pump was at a location now covered by the modern ADA ramp, we have decided to simulate a well/pump whose nearby location also helps cover the modern septic system.

Garden

Just out the back door of the house is the "war garden," telling the story of the 1,570 such gardens planted in Boulder County during the 1910s to help with the country's World War I efforts. But according to Shorty Lohr's 1987 interview, "Moms wasn't a big gardener - I wasn't either for that matter..."

Orchard

There are six heirloom specie apple trees and three cherry trees to simulate a small orchard. We know that George McIntosh was an apple exhibitor at the Boulder County Fair in 1889.

Milk House

This structure was used to keep milk cool by placing milk in the irrigation ditch. Using a description from neighbor/lessee Ray Dirks, we replicated this structure in 2002.

Smokehouse

This structure was located behind the Lohr farmhouse and was replicated in 2009. According to Shorty Lohr, his father George had good smoking woods shipped from "back east" to burn in the smokehouse.

Privy

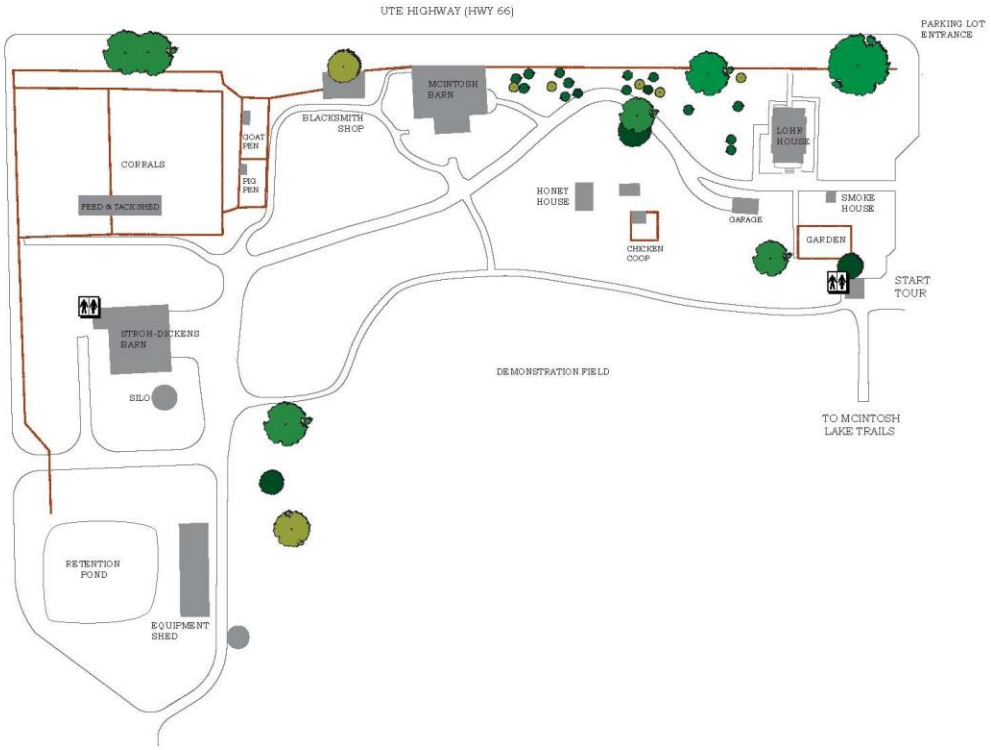
The original privy/outhouse was located almost straight out the backdoor from the Lohr farmhouse. The foundation is still visible, but the original structure has since been lost. In 2002, a period privy from the Scrissiny property in

southeast Longmont was moved to the site. It is the removable box type, not the large-hole-in-the-ground type.

Pole Barn

The pole barn south of the Stroh/Dickens barn was erected during the summer of 2006. As you can see, some of the siding is recycled old wood from another structure. This barn shelters restored farm machinery on display.

Schematic Map of the Site



Text for Interpretive Wayside Panels

Kiosk Panel
(Built with a modular insert to allow for rotating/seasonal messages)

Agricultural Heritage Center at the Lohr/McIntosh Farm

This site traces the region's agricultural development from the late 1800s to the present. The stories told here focus on the many changes experienced by Boulder County's farmers and ranchers in their work and family lives from 1900 to 1925.

To Schedule Group Tours Call 303-776-8848.

Funding for the interpretive signage and the restoration of the 1881 McIntosh Barn was provided in part by a State Historical Fund Grant from the Colorado Historical Society.

Other Kiosk Features:

Site Map, Site Rules, Self-guided Brochure Dispenser, Trash Receptacle

Kiosk Introduction Panel

"GO WEST…AND GROW UP WITH THE COUNTRY"

Boulder County's agricultural history begins with the mountains to the west - - their snow pack runoff provided water allowing agricultural development to occur in this region. As you walk west across the lakeside field, the highest mountain visible is Long's Peak. It was named for U.S. Army Major Stephen Long, who was sent to the region in 1820 to find the source of the Platte River and explore what resources the continent's mid-section held for a growing nation. Upon his return he reported the entire plains, including much of Boulder County, as The Great American Desert. Ironically, he claimed the plains "unfit for cultivation [and] uninhabitable by

a people depending on agriculture." He reported that Americans would benefit more if the region "remained the unmolested haunt of the native hunter, the bison, and the jackall."

For almost four decades, only fur trappers and a handful of explorers shared this area with its Arapaho, Cheyenne, Ute, and other nomadic peoples. But with the prospects of the 1858 gold rush, the new settlers began diverting the mountain creek drainages for irrigation. With irrigation and adaptable crops, Boulder County farmers helped transform 'The Great American Desert' into one of the greatest food producing regions in the world by the dawn of the 20th Century.

Wayside Panel 1
(free-standing, located in front of the ditch/field gate southwest of granary)

"GROWING FOOD AND CHILDREN"

Just ahead to your right as you face this panel is a private lateral of the Longmont Supply Ditch. It is part of an elaborate irrigation system that reveals how Boulder County's pioneer families valued water as much as the precious metals that brought them here in the late 1850s.

One such pioneer was George McIntosh, for whom the lake just south was named. During the 1860s Plains Indian Wars, "Mr. Mac" was a wagon freighter who outfitted regional military posts. He would stop here to pasture his oxen, noting the "grass grew high enough to hide a buffalo bull." In 1868 he returned and built a cabin, located where the white farmhouse to the right is today.

While living there, Mr. Mac began planting wheat. He broke ground with his ox plow, with the help of an African-American hired hand named Jim.

By 1872 Mr. Mac had filed for a homestead patent and married a young widowed mother of two named Amanda Jane (Lee) Noble, and they soon had four more children. In 1877, Teton Sioux warriors in Montana killed Amanda Jane's father, and her mother and brother came to live with them. The log cabin became cramped, so in 1878 they built the frame house that you can still see today across Highway 66.

By 1880, George McIntosh owned over 1,000 acres. He donated land for the Pella Cemetery about a mile to the southwest, where his mother-in-law was the first to be buried.

Wayside Panel 2 *(free-standing, located next to silo)*

"OVER THE TOP"

Silo is a French word for pit - - many early European silos were dug deep into the ground. Historically silos were used to store green fodder, like dried and cut corn, as airtight as possible to keep it from spoiling. The preserved silage fed livestock until next year's crop was available.

Around 1900, cement stave silos like this 44-footer became popular locally. Its stacked blocks, held together by iron rings, allowed great stability. In 1910, a new technique using concrete forms (not blocks) was introduced into Boulder County, the first of its kind in Colorado.

With the beginning of World War I in 1914, the number of silos in the County grew tremendously. They stored feed grains needed by the horses and mules that hauled military equipment into battle, as well as the cattle needed to supply milk and meat for the soldiers overseas. Many of the European soldiers fighting were themselves farmers drawn away from their own farms.

Early silos of various construction materials can still be found in Boulder County. Because of modern mechanization, more efficient storage techniques, and the fact that much of the region's livestock production has shifted to counties to the east, most silos in Boulder County today sit empty.

Silage was loaded into the silo's top by a steam-powered auger or pneumatic blower. The center of the pile and its heavy weight compacted itself, but the pile's edges had to be spread evenly with a pitchfork and stamped by foot.

Wayside Panel 3 *(free-standing, located by the Stroh-Dickens Barn)*

"AS THE CENTURY TURNS"

This massive "western prairie" style barn was built around 1900 at the north Longmont property of William Dickens, Jr., located several miles to the east. As the centerpiece of that 640-acre farm, it stored hay for prized Shorthorn cattle and French Percheron draft horses.

This barn was restored in 1998 after being moved here from its original site, which had been owned by the Stroh family for their sugar beet and cattle feedlot operation since 1928.

Like the earlier unpainted 1881 McIntosh barn, mortise-and-tenon joinery allowed this barn to resist wind by swaying. In addition, the Dickens used battens between the wallboards for weatherproofing.

The barn's interior hay track, used to unload hay from wagons to the upper hayloft, saved much labor. Its overhanging hay hood also provided shelter from weather during loading.

One period paper describes the Dickens family as one of the wealthiest in Boulder County. To harvest large wheat and potato crops, it noted the Dickens owned "a thresher, a self-binder, and all kinds of labor saving machinery" that allowed them to keep "abreast of the times in every way."

Wayside Panel 4 (free-standing, located outside the 1881 McIntosh Barn)

"THE ANSWER WAS BLOWIN' IN THE WIND"

By 1881 George McIntosh needed a large barn to keep up with his growing ranch. Most likely with the help of neighbors, he built this barn with a south facing orientation to allow for warmth in winter and wind protection when opening doorways.

The barn's upper west side stabled mules and horses needed to plow fields and pull farm wagons, while its east shed offered shelter for calving. The wood plank floor of the central level is where Mr. Mac threshed his wheat to sell to local flourmills, and the remainder of the hay loft (or mow) stored the hay needed for feeding the farmyard's livestock.

Being built into the hillside, the barn's lower half provided a cool place to milk up to six cows. Mr. Mac also paid careful attention in building the barn to withstand the area's high winds. Its unusual post-and-beam construction used wood mortise and-tenon joints (not spikes) to allow the entire barn to flex and sway in the wind. Over 100 years later, his grandson, Neil "Shorty" Lohr, commented, "I don't think if it had been spiked together that it would be standin' there now."

Wayside Panel 5 *(free-standing, located near the 1909 Farm House)*

"AROUND THE HOUSE"

This site's original homesteader, George McIntosh, convinced his daughter Minnie Lohr to move her family back to the family farm and build this house in 1909. It replaced the 1868 log cabin and is typical of the period. It is tall and narrow, with a pitched roof and a gabled front. The front porch was originally screened against the bugs attracted by the irrigation ditch running through the front yard. At the back door was the well, now covered by a modern ramp. It supplied the family's drinking, cooking, and bathing water. The privy (toilet) out back was located strategically in the shade.

For the first decade the Lohrs lived in this house (1909-1919), agriculture boomed in Colorado. Widespread hay cultivation reflected a healthy livestock industry and dryland farming techniques helped triple the state's wheat acreage. An apple boom occurred, farming with steam power peaked, and in 1917 President Wilson declared: "Upon the farmers of this country…rests the fate of the war and the fate of nations." This house provided respite from the family's time spent growing crops and raising livestock and chickens for selling eggs and dairy products locally. It also accommodated many guests, as Minnie was very active in politics and the Ladies' Aid Society.

Photos:

- ***Lohr wedding photo [George and Minnie Lohr, circa 1900]***
- ***The Lohr Family (clockwise from left): George, Shorty, Minnie, and Harry Lohr Circa 1917***

Honey House Exterior

"Farmer's Friend: What's all the Buzz About?"

Humans have used the European honeybee (Apis mellifera) for millennia. Some of the more familiar products from bees include honey, wax, pollen, and royal jelly. Bees may fly up to 2 miles from their hive, but their influence is far greater.

Honeybees pollinate about one-third of all crops grown worldwide, including: Alfalfa, apples, apricots, beans, berries, carrots, citrus, cotton, cucumbers, garlic, melons, nuts, onions, peaches, pears, peppers, soybeans, and many more!

Sadly, honeybees are disappearing worldwide. Pesticides, climate change, parasites, and diseases may all be causes of declining bee populations. If we lose our bees, it won't just be honey that goes missing from the dinner table!

What can I do to help bees? Spread the word – Bees are friends that need our help. Chemical free – Pesticides and herbicides are harmful to more than just pests. A chemical-free garden is a bee-friendly one. Keep bees – If done properly, beekeeping is something that can be rewarding, educational, and beneficial for the whole family.

"Liquid Gold – Honey House"

The process of honey collection has changed little over time. A building like this could have been used by 19th and 20th century beekeepers to gather and store honey, wax, and other bee products.

1. Removing the Frames – When the combs are full of honey, they are ready for harvest.
2. Uncapping – Bees seal honey inside combs by capping them off with wax. To access the honey, beekeepers use a heated knife to uncap the combs.
3. Extracting – Once uncapped, honey must be separated from the comb. Made in 1924, this motorized extractor uses centrifugal force to spin the honey out of the comb.
4. Bottling – After being extracted, honey is filtered into the bottling tank. The beekeeper then transfers the honey to containers for distribution.

Did you Know? Honey doesn't spoil. Ever. This is because of its low moisture content and high acidity. Even honey that was found in a 2000-year-old Egyptian tomb was still edible!

Most of the equipment in this honey house originally belonged to Ted Johnson. He kept bees from 1921 to around 1970, and at times had as many as 400 active hives. These items ended up in the collection of Tom Theobald, who was head beekeeper for the

Boulder County Beekeepers' Association for 35 years. Mr. Theobald's generous donation made this honey house possible.

Lohr Farmhouse

Shorty's Bedroom

"Being Outside All Day Wasn't Enough"

After working outside all day, you might think kids would be ready to come inside for the evening. Instead, many children went back outside right after supper. The two Lohr boys might have joined neighbors for a game of base ball, or played in the irrigation ditch on a warm summer night.

"Where's the Computer?"

Today, a teenager may retreat to his bedroom where the computer and television keep him occupied for hours. Look at the items in this room. Do you think Shorty Lohr spent much time here?

Even in the winter, the outdoors had an appeal. How would you like to go with Shorty to a skating party on the lake, and then warm up by a bonfire? Or you could grab your shotgun and go over to Rabbit Mountain to bag a sack of rabbits!

This bedroom represents a teenage boy's "home base" in the early 1900s – a haven after a long day's work, a place to keep his things, and a launching point to head him back to the great outdoors.

Kitchen

"Making Life Easier"

What would we do without modern appliances? Even in the early 1900s, women wanted more convenience and sanitation than their mothers had. The Hoosier cabinet named because it was made in Indiana, combined cupboards, cutting boards, and storage for dry goods, all of which provided convenience and made for easier cleaning. Many Hoosier cabinets included a flour bin and sifter, increasing the ease of baking bread and other goodies.

"Hello…Are You Listening?"

The telephone helped family and friends stay connected in the early 1900s, but there wasn't much privacy. Anyone on the same "party line" could listen to your conversation. Better watch what you say about the neighbor!

"Not Just for Cooking"

The wood/coal-burning stove was important for cooking food, but it was just as important for heating water for washing dishes, doing laundry, and bathing. Do you see a kitchen faucet? No indoor plumbing meant that water had to be drawn from a cistern outside the house.

Look around. See if you can name at least five "conveniences" in your kitchen that were not here in the early 1900s.

Dining Room

"Eating and a Lot More"

Today, a variety of activities often take place at the kitchen table. Adults sort the daily mail, and children finish homework. Maybe you even eat a meal there occasionally! What else do you do at your table?

During the Victorian Era of the late 1800s, formal etiquette dictated that rooms were only to be used for their intended purpose – dining room for eating and bedrooms for sleeping. This house is of the Modern Era that favored more open architectural arrangements, permitting a variety of activities. Similar to today, the Lohr family would have shared meals here, conducted farm business and possibly hosted gatherings of the Hygiene Chapter of the Ladies Aid Society.

Parlor

"Relaxing With the Family"

The early 1900s were known as the Golden Age of Farming. New technology made working the land easier and farm income was good. Although many city folks had electricity before 1920, the Lohrs most likely depended on the ceiling angle lamp, lit with natural gas to provide a dim but helpful light for nighttime activities.

"Music in Many Forms"

Imagine that it is 1910. There is no radio or television, but you gather with your family in this room after supper. You select your favorite musical piece by inserting one of the

scrolls in the player piano. The latest rage of time! (Ask your guide if he or she can play it for you.)

Another source of music was the Victrola. The 1906 Victrola in this room was built with the amplifying horn inside the cabinet. If Mom asked you to turn up the volume, all you had to do was open the top doors. Look at the size of the records. How do they compare to the CDs of today?

Boulder County Agricultural History

General Timeline of Boulder County's Agricultural History

Pre-1820s - Harvesting the land's resources in what would become Boulder County is limited to the Plains Indians' living off of bison, antelope, deer, berries, etc.

1820 - Stephen Long of the U.S. Army is sent west to see what value its resources hold for a growing country. He passes through the region and returns east calling the continent's entire mid-section the "Great American Desert."

1820s - 1830s - Fur trappers are drawn to the creeks and streams of this area for harvesting beaver pelts to satisfy the hat fashions of Europe and the eastern U.S.

1837 - George McIntosh, who eventually homesteads this site, is born in Ohio. This just happens to be the year an Illinois blacksmith named John Deere invents the steel plow, which is a vast improvement over the iron plow because soil does not stick to steel. It cuts furrows at an angle instead of straight up and down, and is light enough for horses (and not just oxen) to pull.

June 22, 1850 – The first gold found in what would become Colorado was found in Clear Creek on this date by a man named Lewis Ralston who was a member of a wagon train bound for California. Ralston found $5 worth of gold in his first pan. John Lowery Brown, who kept a diary of the party's journey from Georgia to California, wrote on that day: "Lay bye. Gold found." In a notation above the entry, he wrote, "We called this Ralston's Creek because a man of that name found gold here."

Ralston continued on to California, but returned to Ralston's Creek with the Green Russell party in 1858. Members of this party founded Auraria (later Denver City) in 1858 and touched off the gold rush to the Rocky Mountains.

June 24, 1858 – William Green Russell of Georgia and a party under his leadership discover gold on the banks of the South Platte River, just 3 miles upstream from the confluence Cherry Creek (near the present Alameda Avenue bridge).

1859 - Left-handed Arapahoe Chief Niwot confronts Wisconsin Gold Mining Company prospectors who build cabins on the site that soon becomes Boulder City. Later, Chief Niwot scolds local farmer Jerome Gould as he plows his field near Left Hand Creek. The chief exclaims, "wrong side up," noting that plowing the land will make it useless for wild animals to graze.

1859-1870s - Although in the early 1830s Cyrus McCormick of Virginia invents a mowing and reaping machine that enables farmers (without large numbers of hired hands) to harvest more wheat than ever before, during the gold and silver rushes mostly primitive hand tools are used for agriculture in the Colorado Territory (Kansas/Nebraska Territories until 1861).

Besides allowing the possibility for farming the Midwest's large tracts of land, McCormick and his invention initiate two other future trends. First, he offers to sell his reaper on credit, allowing farmers with little cash to obtain and use his reaper while paying for it in installments over the course of several seasons. Second, the motto for his McCormick Harvest Machine Co. of Chicago is "Our Field is the World," which holds prophetic significance for the future of global agriculture.

1859 - The first crop attempted by gold rush settlers in the Nebraska Territory is the turnip, planted here in what would later become Boulder County by brothers Henry, Luther, and Sylvanus Wellman. Grasshoppers destroy the entire crop. They later plant potatoes and a small patch of wheat.

April 1859 - In the "Farming vs. Gold Digging" editorial of the very first edition of the Rocky Mountain News: "Our opinion is that farmers who stay at home, and spend as much money to improve and cultivate their farms, will realize more clear profit by so doing than they will (by going to) the mines…and those that raise stock and produce for the mines will get their equal share of the gold in exchange for their produce."

May 1859 - William H. (Bill) Dickens arrives here to the "Jefferson Territory[2]" from Wisconsin with friends and 80 horses to join his stepfather Alonzo Allen in Burlington, which becomes an agricultural ghost town once it is transformed into the nearby town of Longmont. Like others who realize the region's dry climate cures the wild hay quickly, he begins cutting it by hand to sell in the mountain mining camps and to the stage companies. He is called by one historian as the man who "turned over the first furrow in (this) part of the St. Vrain Valley" and becomes a feed-grain industry pioneer in what would become Boulder County.

1859 - Marinus Smith and William Pell dig the first agricultural ditches in the Boulder Valley.

1859 - Lower Boulder Ditch becomes the first official irrigation ditch in Boulder County.

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[2] Jefferson Territory was an extralegal territory of the United States that existed from 1859 until 1861, just prior to the Congressional organization of Colorado Territory. The government of the territory, while democratically elected, was never recognized by the U.S. Congress, although it managed the territory with relatively free rein for nearly two years (Wikipedia).

1859 - The area's first corn (cultivated by white settlers) is grown from improved seed strains brought from the Midwest. This "American" seed differs from the "Mexican" seed grown in Colorado since the early 1840s along the Santa Fe Trail. Regional farmers are surprised by the heavy yields that result from ditch irrigation, and corn soon supplements hay as a major source of feed for freighting and farming livestock.

1859 - Boulder City is founded.

1859 - 1870s - Gold rush farmers tremendously inflate vegetable prices, charging as much as $16.00 for a bushel of potatoes in the mining camps. One 1860 report notes onions bringing 50 cents per pound, and flour $28.00 per hundred pounds.

March 1860 - Early dairyman D. P. Walling uses South Boulder Creek to churn butter, his being the first butter shipped to the growing Denver City from a distance.

1860 - Although the first crop of sugar beets in the Kansas/Nebraska Territories is planted in the Platte Valley by Swiss immigrant Peter Magnes, it would be 40 more years before the potential of this specialty crop is realized on a large scale in the region.

1860 - George McIntosh arrives by covered wagon and claims a 160-acre farm site northeast of here in what would become the future site of the farming town of Greeley in Weld County, Colorado.

1860 - Anthony Arnett brings 1000 heifers into the Boulder Valley, marking the beginning of the area's cattle industry.

1860 - Pella (now an agricultural "ghost town") is settled southwest of this site by pioneers from a town in Iowa of the same name. It becomes one of the first settlements in the area, but vacates by 1885 because of a railroad depot established a mile north, which becomes the town of Hygiene.

1860 - The Left Hand Ditch Co. is formed. It would be consolidated in 1863, chartered in 1866, and become responsible for digging the first diversion channel in the Nebraska Territory.

1860 - Just east of Boulder City, the Wellman brothers harvest the first crop of wheat in what would soon become Boulder County. As hot dry windy summers often toast their wheat plants, Platte River Valley farmers like the Wellmans learn to grow winter wheat varieties. Planting in the fall allows the winter's snows to nourish the wheat plants harvested in late spring.

January 1861 - A newspaper article notes how little time it has taken for farmers to influence the cost of living in the Pike's Peak region: "A year ago flour was worth $16 to $18 per hundred pounds; now it can be bought for $10 for first quality and $9 for second grade."

1861 – The Colorado Territory is formed with Boulder County as one of its 17 counties.

1861 - The Arapaho and Cheyenne agree to give up their lands (much of it prime farm land) in this part of the Colorado Territory and relocate southeast to a reservation between Sand Creek and the Arkansas River.

1861 - The first gristmill for grinding wheat in the County is built at the mouth of South Boulder Canyon, with a writer later describing its product as "some of the fairest, sweetest flour…seen in any section of the States." A second mill is soon built on the St. Vrain Creek near Pella (the area now known as Hygiene).

1861 - George McIntosh begins putting up hay in the Cache La Poudre Valley near Ft. Collins to sell to the mining camps. As the horses, mules and other livestock in the camps need much nourishment; the hay contracts yield him sizeable amounts of cash until the Civil War breaks out.

July 1861 - Just south of Boulder City, farmer H.O. Norton harvests one of the earliest barley crops, announcing in Denver City "his intention of sowing barley again, his first effort having been quite successful."

July 1861 - The Rocky Mountain News refers to pork as a luxury in the region, noting that a train of two-three hundred hogs having a "seeming appreciation of their importance and dignity" are moved about "under the guidance of efficiently experienced hog drivers" who are "dependent on the scarcity of the swine species in this uncivilized country."

1861 - The first Hereford cattle arrive in the Colorado Territory.

1861 - 1865 - The Civil War rages in America. Boulder County pioneers like George McIntosh and Bill Dickens volunteer with the U.S. Army to fight against the Confederates.

1862 - The Homestead Act allows settlers 160 acres for their homes, farms, and ranches. Homestead claimants are required to make improvements and live on ("prove up") the land for five years before title is conveyed to them from the federal government.

Early 1860s - '59er David J. Lykins, who once had a run-in with the Arapahoe named Yellow Hand at his property east of Lyons, is the first beekeeper in Boulder County. In 1863, one beekeeper reports selling honey to miners at Central City for $1.00 per pound.

November 6, 1862 - The mail drop at the Allen cabin on the St. Vrain is declared a U.S. Post Office with the name of Burlington.

1863 - Alfalfa is introduced to the Colorado Territory. As for the Boulder County area, one report claims Charles Baldwin brought alfalfa seed from California and planted it at the south end of Boulder County in 1868.

1863 – Dry summer with record snowfall in winter.

1864 - Early herd laws for Douglas and Weld Counties provide that "no person farming or cultivating land within the limits of the (these) counties shall be required to fence or enclose (sic) same against any stock running at large or herded within said counties. All persons owning or having charge of stock will be required to herd or confine same during the season of growing crops." The law empowers owners of crops damaged by stock to seize the animals and impound them until reimbursed for their losses. The laws are passed but never enforced.

1864 - Half a dozen huge wagon loads of hay, each pulled by six yoke of oxen, come through Denver City from surrounding ranches, a reporter noting that "each load probably contains four tons and is worth at present rates about $600 - at Central City, each load would bring almost $1,000."

1864 - Charles Goodnight, Oliver Loving, and other Texans begin driving large herds of Longhorn cattle from central and west Texas up through the New Mexico Territory, through Pueblo to Denver City in the Colorado Territory. In 1868, the trail is extended from Denver City up to Cheyenne, passing somewhere near the eastern edge of Boulder County.

April 1864 - Of potatoes grown in the region, the Rocky Mountain News notes "in ordinary seasons the yield is quite large - an average say, of 200 bushels to the acre. The varieties mainly cultivated are the Kidney, the Neshannock, and the occasional Peachblow. The Pinkeye has proved a failure. The secret of the extensive production of potatoes lies in the fact that the mining settlements where vegetables cannot be raised create a large demand and they are the easiest crop transported and kept in winter use."

August 1864 - As forced starvation leads to raiding by Plain Indians, farmer D. H. Nichols of Boulder County is commissioned by Col. John Chivington to assume command of the Boulder Company "D" of the 3rd Colorado Regiment of the U.S.

Cavalry, which trains briefly at the temporary "fort" located in the pasture of a farmer named Chambers, north of Valmont. On at least one instance, alarmed farming families of the local "Home Guards" huddled by night within the sod fort's interior.

November 1864 - The Sand Creek Massacre takes place in southeastern Colorado. Arapahoe chief Left Hand is killed, along with hundreds of Indians, mostly women and children, as they fly the peace flag. Bill Dickens of Burlington survives, but two of Boulder Company D's men are killed, one from Valmont and one from Boulder City.

1864 - John Kuner opens his "kitchen cannery" in Denver City, canning pickles, chow-chow (mixed vegetable relish pickled in mustard), and peas. His insistence on quality helps his business survive through the factors challenging most agricultural industries of late 1800s Colorado: late springs, early frosts, hot summers, drought, hail, grasshoppers, plant diseases, etc. The company becomes known as the Kuner Pickle Co. and moves to Longmont in 1927 to merge with the Empson Packing Co.

1865 - George M. Lohr born is in Pennsylvania.

1865 - Union Stockyards open in Chicago, but they process only Eastern-raised beef. Soon, as the West's railroads are built, Colorado ranchers find they can buy up Texas steers very cheaply, fatten them up here, and quadruple their money by shipping sales to the East.

1865 - The first livestock brand in Boulder County is given to Joseph Harden. It consists of a cut on the cattle's dewlap (loose skin hanging from their throats).

1865 – James Viele introduces the first grain thresher in Boulder County.

1865 -The town of Valmont is platted at the confluence of North & South Boulder Creeks.

1865 - 1872 - Relatively dry years.

1866 - After his three-year Civil War service with the 1st Colorado Volunteers, George McIntosh begins a freighting operation, pasturing his oxen team at an area with a large natural drainage that he returns to purchase in 1867.

1866 - Record snowfall.

July 1866 - Travel writer Bayard Taylor passes through Boulder County, noting "the extent and beauty of the cultivated land watered by (its) streams was a new surprise. For miles farm followed farm in uninterrupted succession, the breadths of wheat, black-

green in its richness, or overrun with a yellowing gleam, dotted with houses and clumps of trees, like some fenceless harvest-plain of Europe! A spur of softly tinted hills in the north, the solitary rock-crowned hill of Valmont in the east, the snows of Longs Peak to the northwest – these were the features enframing the lovely valley. Here I saw again how much Civilization improves Nature."

September 1866 - The first agricultural fair in Colorado Territory is held by the Colorado Agricultural Society, just northwest of Denver City. Besides cheering on horse races on the ½-mile racetrack or Miss Carrie Barker of Boulder as she takes the silver saddle with her exhibition of bareback riding, visitors can view exhibits of prize livestock and vegetables such as a 15 pound turnip and a 35 pound cabbage. The society's first President Richard Sopris notes: "Judging from the agricultural products placed on exhibition, we are of the opinion that uplands on the plains produce equally as good and heavier crops of grain than the low bottom lands. Also, that as fine garden vegetables can be grown in the mountains, almost to the very foot of the snowy range, as upon the plains." Boulder County's D. H. Nichols (of Boulder Company D – Sand Creek Massacre fame) is an early Vice-President of the society.

1866 - The first fruit growers documented in Boulder County are raising strawberries.

1868 – George McIntosh purchases a 160-acre homestead at the current location of the Agricultural Heritage Center. He builds a log cabin, and with the help of an African American named Jim, begins breaking ground for farming wheat and raising cattle. The large lake just to the south is eventually named after him.

1868 - By this time roughly 50,000 acres of farmland have been planted along the tributaries of the South Platte, with one reporter noting that the major crops of 55 farms visited within a 20-mile strip include wheat, oats, corn, barley and potatoes. "In riding through this rich and fertile valley, we were struck by the visible signs of improvement on every hand. The log cabins of '59, '60, and '61 stand in marked contrast to the neat and comfortable frame and grout farmhouses, within which comfort, contentment, and happiness reign. Many farmers are beautifying their places by planting shade and fruit trees."

October 12, 1869 - Boulder County Agricultural Society holds the first County Fair in Boulder. It would later move to Longmont in 1899 and finally move to the current Fairgrounds in 1978.

1869 - Transcontinental railroad is completed. Nearest stop to Colorado is in Cheyenne, Wyoming.

1869 - Farmers from Boulder, Larimer, Weld, Arapahoe and Jefferson counties meet in Boulder City. According to the first edition of the *Boulder News* (October 12, 1869) they meet "for the protection of farmers against depreciating prices of farm products by speculators." The convention recommends that one or more farmers clubs be organized in each of the Territory's districts for "discussing all subjects in which agriculturists, fruit and stock growers are interested."

1869 - Ryssby, today an agricultural ghost town, is settled by Swedish immigrants of the Smoland Colony. They choose the land near the foothills because the fertile soil in their homeland is typically located at the transition of mountains and plains. But like many of the Colorado Territory's early agricultural pioneers, they find out the hard way that traditional European and Midwestern farming customs do not always apply in their new environment: the rocky ground along the foothills section of Boulder County is only suitable for grazing. The Ryssby community becomes home to Colorado's first Lutheran Church, with the irrigation reservoir roughly five miles southwest eventually being named for its minister F. Lagerman.

1869 - A Burlington area farmer named Bill Dubois loses an apparently rigged horserace that causes friction between him and Ed Kinney, who is partly responsible for the arrest of Dubois and his unsavory companions after they are accused of a stagecoach hold-up north of town. After they are released when no witnesses - including Kinney - choose to testify, Dubois demands money for his trouble (six weeks in jail while awaiting trial) and shoots Kinney dead when he refuses to pay. The town's new marshal, Burlington pioneer farmer Bill Dickens, helps round up a posse and finds Dubois at the Left Hand Creek farm owned by Dubois's father, Ebenezer. But Dubois escapes on a pony kept in the back of the cabin and heads into Left Hand Canyon, shot through the foot in the escape. He holes up at a farm owned by the Jimison family just east of Table Mountain, but a hired hand soon slips out to summon another posse. The posse of Bill Dickens then runs into Dubois and Dubois takes aim at his arch-rival Bill Dickens, but the rifle he took from the Jimison farm has its sights set for long range antelope hunting, and he misses his mark (Bill Dickens' head), just catching his hat. Upon mounting his pony, Dubois is then shot and falls to the ground and begins shooting with two revolvers, but is quickly "all shot to pieces." His body is taken into town on a borrowed farm wagon for public viewing before being buried beside his mother and younger sister at his father's farm.

1870 - The first railroad in the County is a spur of the Denver Pacific built to access the large coal vein at Erie, a few miles southeast of Burlington.

1870 - The bonanza ranching period begins in the West, marking the golden age of the American cowboy.

1870 - The Colorado Agricultural College is founded at Ft. Collins, later becoming Colorado State University.

1870 - The population of Boulder County reaches 1,939 people.

1871 - On their scouting trip, organizers for a planned farming community called the Chicago-Colorado Colony (now Longmont) spend the night at the Burlington stage stop, the Allen House, owned by Bill Dickens' mother. They project the use of 55,000 acres of land irrigable by the St. Vrain, Left Hand, and Boulder Creeks, and eventually purchase part of Bill Dickens' property for the colony. Its Articles of Incorporation dictate "members must be of strict temperate habits and good moral character."

April 1871 - "(Longmont's Chicago Colonists) are beginning to come in quite lively. We are told that two or three parties have arrived direct from England, bringing with them the old fashions, knee breeches, big buckle shoes and all. One man brought four hundred chickens to start a hennery and another is expected shortly with a thousand…About two hundred of the colonists have arrived." (Boulder News, 4-71)

May 1871 - "The Chicago Co. [Colony] at Longmont…is reported in prosperous condition, and as they have some good, industrious members from Illinois and elsewhere, planting is more or less extensive, particularly in regard to forest trees." (Greeley Tribune, 5-31-71)

1871 - One of the first grain threshing machines in Boulder County is brought by Lafayette Miller, a farmer living near Longmont. The coal-mining town of Lafayette is named for him in 1888.

1871 - The first Grange organization (Patrons of Husbandry) in Boulder County is organized in Valmont, where they meet in the Good Templar Lodge.

1871 - The Northern Colorado Agricultural Society purchases 80 acres for a fairground in Longmont (later named Roosevelt Park).

1871 - The Colorado Stock Growers Association is formed, with its purposes set forth at its first meeting in January of 1872 in Denver to "protect the interests alike of stockmen, ranchmen and farmers, and to harmonize…what might be conflicting in the great interest of agriculture and stock raising." But it is soon obvious that that the "plowman, cowman, and sheepman" have divergent interests and most farmers choose not to join an organization formed for the protection of the range cattle industry. One of the first things the organization does is to have legislation passed for reimbursement by railroad companies for cattle hit by the newly built railroads:

Texas yearlings	$7

Texas two-year-olds	$12
Texas cows, three years old & over	$16
American yearlings	$12
American two-year-olds	$22
American three years and over	$30
American work cattle	$37.50
American sheep	$2.50
Mexican sheep	$1.50

Soon, the rates of repayment make it more profitable for the stock raiser to sacrifice his cattle or sheep to the railroad than to place them on the market. In time the railroads fence their rights of way, as the traveling public objects to frequent delays while train crews run in front of the train to chase cattle and/or sheep from the track. Another early accomplishment of the organization is to prohibit cattle from Texas or Mexico to run on the open range except in some of Colorado's southernmost counties.

187? - As the Union Colonists at Greeley (the Territory's first agricultural Colony – founded 1870) build a 45-mile flat wire fence to enclose their holdings, conflict with the quickly developing "range" cattle industry erupts. The fence symbolizes the Colony's independence and their belief in the democratic forms of American land ownership versus the almost feudalistic attitude of the "cattle kings."

1871 - The first Strawberry Festival is held with the opening of Library Hall in Longmont (but there are few strawberries in the area at the time!). This tradition continues today, sponsored by the St. Vrain Historical Society.

1871 - The first organized cattle roundup is held at Platteville, just east of Longmont.

1872 - The Colorado Territorial Assembly provides for registration of livestock brands on a countywide basis.

1872 - The State Agricultural College in Ft. Collins begins experimenting with alfalfa.

1872 - South Boulder County foothills rancher James Walker is awarded a silver coffee pot for his prize of best wheat at the Boulder County Fair.

1872 - Three cattle breeding farms are established in the Colorado Territory, with 87 pedigreed Shorthorn, Devon, Jersey, Hereford and Galloway bulls brought in from other states. The Shorthorn variety predominates.

1872 - Record snowfall.

1872 - The *Colorado Farmer*, first agricultural journal in the state, is founded in Evans, northeast of Longmont. It merges with *Western Farm Life* in 1914.

1872 - The national horse and mule epizootic disease reveals how important these animals are to everyday life. It claims almost a quarter of the nation's horses (over 4 million) and brings the country to a virtual standstill for three months before winter kills mosquitoes that transmit the virus. By that time, the financial losses suffered help bring the Panic of 1873. In larger cities, teams of men pull carts and wagons as homes go without fuel deliveries, fires blaze unfought, and garbage remains uncollected.

September 1873 - British traveler Isabella Bird spends time in this part of the Colorado Territory. In staying with a local immigrant British family, she notes that they had come here without the "slightest knowledge of domestic and farming details" and "have been cheated in land, goods, oxen, everything." She gives them a hand on their meager farm, noting "yesterday we saved three cwt. of tomatoes for winter use, and about two tons of squash and pumpkin for the cattle, two of the former weighing 140 lbs. I pulled nearly a quarter of an acre of maize, but it was a scanty crop, and the husks were barely filled." Miss Bird's description of "Longmount": We first came upon dust-colored frame houses set down at intervals on the dusty buff plain, each with its dusty wheat or barley field adjacent, the crop, not the product of the rains of heaven, but of the muddy overflow of Irrigation Ditch No. 2"…of the St. Vrain River, "which enables Longmount to exist."

All in all, Miss Bird has a "useful warning to professional men without agricultural experience not to come and try to make a living by farming in Colorado." (read more of her story in *A Lady's Life in the Rocky Mountains*.)

1873 - Boulder County farmers boast of corn "which stands 10 feet high and is as fine looking as the average of that raised in the corn-growing states." An *Evans Journal* paper of October of that year notes "the variety most cultivated is the same small eared yellow corn which ripens before frost: but the Mexican and Australian is also cultivated and is preferred by some of our farmers."

1873 - The Colorado' Farmers Union is formed.

1873 - The Washington and Left Hand Granges are formed in Niwot.

1873 - The Lower Boulder Farmer's Club is formed.

1873 - The Panic of 1873 begins a national economic depression that lasts four years.

1874 - Due to the popularity of horse racing, the Boulder County Agricultural Society changes its name to Boulder County Industrial Association and Racetrack.

1874 - The copper binder wire that mechanical grain binders use is replaced by twine as cows are killed by ingesting bits of wire left in the wheat straw after going through the grain separator.

1874 - Joseph Glidden's famous barbed wire (manufactured with help of two coffee grinders) is patented.

1874 - Ft. Collins farmers use most of the Poudre River's water, and as drought develops, most Greeley farmers find themselves without water and threaten violence and court action to start the water flowing again.

1874 - 1876 - Large swarms of the Rocky Mountain Locust (Melanoplus spretus) breed in the foothills and devour everything in sight, with Professor Robinson of Boulder noting one swarm travels from Boulder Canyon about 600 miles to eastern Kansas and Missouri. The State First General Assembly urges appropriation of funds for " the investigation of the history, haunts, and means of exterminating this insect and also by statute prohibiting the destruction of insectivorous birds."

1876 - Through an interpreter, Ute Chief Colorow reacts to cattle ranching on the Colorado plains, warning prospector-turned-cattle rancher Joe Bowles, " Buffalo are Indian's cattle. White man's cattle eat all grass, buffalo die, no feed. No hunting, no meat, no robes. White man must go, damn quick. Colorow no big fool. No more talk." The rancher responds, "Tell Colorow to behave himself. I will shoot a hole in him so big that a dog can crawl in. Now all of you, git."

1876 - The Colorado Territory becomes the 38th state in the U.S., the "Centennial State."

1876 - At the 3rd Boulder County Fair held by the Boulder County Industrial Association just before the State Fair, the Lower Boulder Grange Number 15 exhibits "a good display of grains and vegetables, one exhibitor sending 31 varieties".

1876 - At the State Fair, farmers exhibit fine examples of squash, beets, potatoes, apples, native plums, pears, melons and freshly cut grass measuring over six feet in height. They can look over implements such as Rock Island plows and Walter A. Wood Harvesters, reapers and mowers. Also, there are Bain wagons, hay presses, grain drills, sulky hay rakes, and a J. I. Case steam thresher. The cattle for the show include Shorthorns, Ayrshires, Jerseys, and other grades and crossbreeds. An Ayrshire bull and a Jersey bull command notice among the dairy cattle. The classes of horse competition include thoroughbred roadsters, horses "of all work," draft horses, saddle horses, carriage teams, and single driving horses. Poultry classes include Brahmas, Cochins, White Leghorns, Silver Spangled Hamburgs, Bantams, Bronze turkeys, Plymouth Rock

hens, and Black Spanish Hens. Finally, besides a contest for the best Colorado-made flour, there is a $10.00 reward for the "best dressed buffalo hide dressed in Colorado by a white man."

1877 - The Colorado State Board of Agriculture is created.

1877 - The Desert Land Act allows 640 acres to those providing irrigation to their claims. This was reduced to 320 acres in 1890 amid widespread evasion of the law's requirements.

1877 - Dr. King, who kept bees near Golden since acquiring them by railroad from Indiana in 1870, moves to Boulder, where he conducts the Italian Apiaries, an early commercial-scale honey venture of Colorado.

1877 - The 'hopper dozer' is invented in Valmont. Its maker claims it can clear 40 acres of grasshoppers per day.

May 1877 - The Greeley Tribune notes, "Every farmer who has not a patch of alfalfa clover should look at his neighbor's, and the sight of its rich green stems, ten inches high and full of leaves at an early date, will convince him of its value. In (as little as) two weeks it may be cut for hogs and even horses."

1877 – Wisconsin immigrant C.W. Hayden establishes Boulder County's first cheese factory in Valmont. By the middle of summer he is taking in about 1,900 pounds of milk a day from local farmers. The factory's capacity is 3,600 pounds a day, which, at 20 cents a pound, creates impressive revenue of $72.00 per day. Hayden takes his pay at 3 cents a pound.

1878 - Registration of livestock brands as a defense against rustling and losses from strays becomes statewide (not just countywide as before) with the State Livestock Inspection Board. But much confusion exists in brands because of duplication and the wide area over which the herds ranged. So W.C. Baker, a long-time secretary for the Board, devises a system of brands based on the alphabet, numbers, and geometric figures in orderly arrangement. The system permits almost endless combinations and variations of letters, numbers, and signs, so that new brands may be added indefinitely without the need of eliminating those no longer in use. The Baker system of registration is later adopted by all western range states.

1878 - The U.S. Department of Agriculture gives out free seed to farmers.

1878 - 1903 - A stage line runs from Longmont to Estes Park.

1879 - The introduction of corn planters, binders, and other agricultural inventions opens the way to large scale ranching and farming in the West.

1879 - Exceptionally dry year.

1879 - Legislation creates a system of public control of Colorado streams. A State Water Commission assigns a commissioner to each of 10 districts to ensure water is divided by the prior rights of the various ditches. It draws on customs recently evolved in farming communities and mining districts and spells out a doctrine of prior appropriation that ranks water usage: domestic, agricultural, and industrial. This "Colorado System" becomes so successful that other Western states copy it.

1879 - Colorado is divided into cattle roundup districts with commissioners setting dates for roundups and assuring the observance of well-defined rules for branding and the disposition of strays.

1880 - Boulder County now has over 10,000 residents.

1880 - Hiram Prince is appointed by Governor Pitkin to oversee the division of the waters of South Boulder Creek.

Early 1880s - *Wet years* provide extraordinary time for "beef bonanza" with high beef prices.

1881 - George McIntosh's ranch is now over 1000 acres and he builds a large barn to store his hay harvest, thresh grain, stable his horses and milk cows, and to provide shelter for calving.

1885 - The population of Longmont is 1,130.

1885 - Zang's Spur, a Pony Express and railroad stop in SE Boulder County becomes known as "Broomfield" due to a field of broomcorn growing near the railroad line.

1885 - 1890 - Farmers settle Colorado's eastern plains. Towns like Akron, Otis, Yuma, Wray, Eads, Kiowa, Limon, Hugo, and (the second) Burlington are formed.

1885 - The state establishes a veterinary board to enforce quarantine against cattle suffering from the tick-borne "Texas fever" and to require brand inspections on a statewide basis.

1886 - The *Field and Farm* journal is published until 1920.

1886 - 1887 - Depression in the cattle business, caused by overcrowding, inexperienced cattle operators, and Texas fever is compounded by a dry summer of '86 and harsh winter of '87, causing "The Great Die Up," with many range cattle lost. It signals the end of the open cattle range, and many cattle producers turn for survival to producing stock of high quality on a small scale with herds of 300 head or less. Eventually the McIntosh family is one such outfit, summering their cattle in the foothills of central Boulder County.

1887 - The Colorado State Fair is held in Pueblo for the first time.

1887 - In Longmont, John Empson builds the first canning factory for locally grown fruits and vegetables and names his company "J. Empson & Daughter." At the time, peas have to be picked from the pod and hand washed, the cans filled by hand, then heated to extremely high temperatures in order to sterilize the vegetables at this altitude. The cans are then soldered and labeled, and the high expenses dictate quality management, which pays off for the Empsons. They soon open canneries in Ft. Lupton, Loveland, and Greeley, and by 1908, Colorado (and Longmont in particular) leads the world in the canning industry.

1889 - The State Experimental Station[3] declares alfalfa the preferred livestock forage crop for this region.

1889 - The first show of the State Horticultural Society is held in Denver. George McIntosh is an apple exhibitor from Boulder County.

1889 - 1890 - Drought years.

1890 - After the 1880s, few Texas Longhorn cattle are still seen in Colorado. Besides their beef generally being substandard, their long horns make their shipment by railroad impractical relative to the shorter horned cattle.

Between 1890 - 1917 - Cultivated farm acreage in Colorado grows from 4.6 million acres to 23.7 million aces.

1890 - Over 900 farm implement companies are in business throughout the U.S.

1890s - Steam engines replace horses as the source of power for big grain threshers.

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[3] Colorado Agricultural Experimental Station is still run by Colorado State University.

By 1890 - Boulder County has 500 acres planted in fruit crops: strawberries, blackberries, raspberries, apples, and 265,990 pounds of grapes and 1,035 gallons of wine produced for the year.

1891 - Results of the 1890 U.S. Census reveal that the frontier (the habitable regions of the U.S. with less than two persons per square mile) is no more, indicating that the American western frontier is closed. The old free range has disappeared, and ranching becomes an organized, fenced-in operation. Homesteaders overflow the lands of the West and sheep are introduced. With these changes the cowboy of legend also disappears.

1891 - Progressive reform minded-representatives from 17 Colorado counties meet in Denver to organize the People's Party of Colorado. Many of its supporters are from the economically depressed mining counties as well. They battle the monopolists, pushing for 8-hour workdays, employers' liability legislation, and a child labor law.

1892 – John Froelich built the first practical gasoline powered tractor in Clayton County, Iowa. This set the stage for increased efficiency in farming; however, motorized tractor design did not become successful until 1911.[4]

1892 - To the detriment of grain farmers, the noxious weed Russian Thistle makes its way to Boulder County from Morgan County, where a colony of Russians had first brought it to Colorado as an impurity in seed wheat. It is said to have first arrived in the U.S. in a load of flax seed from Russia that was bound for North Dakota in the mid-1870s. At that time, when the mysterious "pretty plant" bloomed, neighbors advised Dakota farmer Henry Schatz to get rid of it, but he said, "No, let it grow and see what it will amount to."

1894 - Severe drought.

1894 - A *wet winter* and 60 hours of rain causes a "100 year flood" that wipes out mountain towns of Copper Rock and Springdale.

1894 - Dry land farming, or the use of drought-resistant crops and moisture-conserving tillage, is fostered in Colorado through experimental farms to show the possibilities of frequent cultivation and sub-soiling.

1895 – 1915 - An apple boom occurs in west-central Colorado, but ends due to over-irrigation and the salination of orchards, infestations by the coddling moth, and competition from new orchards in the Pacific Northwest.

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[4] http://en.wikipedia.org/wiki/Tractor

1895 - Richard Wilson provides one of Boulder County's first wheat threshing crews. This represents a transition from independent threshing with tools, to threshing with machines and a team of people.

1897 - The Left Hand Park Reservoir Dam on Bald Mountain breaks, sweeping away trees, houses and bridges in Left Hand Canyon, killing a mother and daughter. The Coroner's Jury blames the Left Hand Ditch Company for negligence.

1898 - At the National Livestock Association convention in Denver, the "last great feast of wild meat" is offered. Along with 300 kegs of free beer, there are five buffalo, four elk, two bears, 15 antelope, 10 beeves (cows), 30 sheep and 200 possums served. As a rush of about 30,000 people show up, many of them are described as "undesirable people" and "hoodlums" who crash the gates, go to the tables first, and stay there and keep other guests away. When they leave, they steal 1,000 steel knives and forks, 2,000 tin cups, 50 china platters, 25 galvanized iron pails, 20 iron meat hooks, as well as cleavers, hatchets, carving knives, and beer glasses. Many fights break out, women and children are trampled, and one murder occurs.

1899 - The Farmer's Institute holds the first Pumpkin Pie Day Celebration in Thompson Park in Longmont.

1899 - George Lohr (from Pennsylvania), the Hygiene Postmaster, marries George McIntosh's daughter Minnie and purchases the original homestead from George McIntosh. They farm with horses, grow feed crops, raise Shorthorn cattle, keep Jersey and Holstein milk cows, raise chickens, keep pigs, and sell eggs, milk and butter. Because George considers cottonwoods unsatisfactory for burning in his smoke house, his relatives ship oak to him by freighter from back east to burn.

By 1899 - Colorado ranks first in the nation in the number of farm acres irrigated.

January 1899 - The state Honey Producers Association is formed, with J.B. Adams of Longmont as a board member. It is based on a cooperative principle, selling bee products and beekeepers' supplies on commission.

Around 1900 - The development of inexpensive tin cans gives a boost to canning companies like the J.H. Empson Company in Longmont.

Early 1900s - The Kuner pickle factory makes Erie more than just a coal-mining town.

By 1900 - All direct stream flow from ditches in the region is already over-appropriated.

By 1900 - Hay is the most common crop grown throughout Colorado and potatoes have become a major crop in Colorado.

1900 - Neil "Shorty" Lohr, the first son of Minnie McIntosh and George Lohr, is born.

190? - The new railyard allows the farmers around the mining town of Louisville to deliver small-scale garden produce to Denver and the processing facilities in Longmont.

1900 - The cement stave silo (for storing green fodder) is popular in the County. It is built with stacked blocks held together with iron rings. In 1910, a new technique using concrete forms is introduced into Boulder County, the first of its kind in Colorado.

1900 - The Rocky Mountain Locust is extinct, with less than ten specimens preserved at the Smithsonian Institution in Washington, D.C.

1900 - Steam tractors are being fit with governors, which regulate fuel intake (speed).

1901 - Farmers in Boulder Valley begin raising sugar beets for sale to the new Loveland Beet Factory. Over time other specialty cash crops become important in Colorado, including apples, asparagus, barley, beans, carrots, celery, cherries, corn, lettuce, mushrooms, onions, peaches, pears, plums, raspberries, sprouts, squash, and tomatoes.

1900s - The Lohr/McIntoshes begin raising produce (beans, peas, etc.) to sell to the canning factory in Longmont and sugar beets to sell to the Great Western sugar company in Longmont. They delivered the harvested beets to the dump station at the Hygiene, where the beets would be weighed and dumped into a rail car for delivery to the sugar factory.

1900 - 1910 - Thousands of Japanese immigrate to Colorado to work in the sugar beet fields of northeastern Colorado.

1902 - The Bureau of Reclamation is established under The Newlands Act, where proceeds from the public sale of lands in 16 arid western states are set aside as a revolving fund for water diversion, storage, and distribution facilities. Soon water projects to divert water across the Continental Divide are under way.

1902 - Cyrus McCormick dies and his son merges the company with two others to form the International Harvester Co.

1902 – Raymond A. Browne's "Down on the Farm" is a popular song nationally.

1903 - The population of Hygiene is 60. The businesses associated with the folks in its telephone directory include: auctioneer, justice of the peace, general merchandise

contractor and builder, blacksmith, rooming house, carpenter, postmaster (with cigars, tobacco, and confectionery), hotel, general merchandise, constable, feed mill, drugstore). By 1917 the town's population is 300.

1903 - The first sugar beet factory built in Boulder County is the Great Western Sugar Co. in Longmont.

1903 - McIntosh Lake is enlarged to 263 acres to provide a reservoir for the Highland Ditch, increasing water storage to irrigate the fields of the new sugar beet industry.

1905 - Hispanic laborers begin coming into the area to work on the sugar beet farms.

1905 - Harry Galen Lohr, the second and last child born to Minnie McIntosh and George Lohr, is born.

1905 - 1906 - A plan to build a reservoir that would require relocating the people of Lyons to Dowe Flats so the town could be flooded is met with disdain.

1906 - The National Western Stock Show debuts in Denver.

1906 - The first meeting of the International Dry Farming Congress is held in Denver. It signifies the peak of the second wave of dry land farming, revives dead towns on the Colorado plains, and creates 20,000 new farms during the next decade.

1906 - Six months after the publication of Upton Sinclair's *The Jungle,* the Pure Food Bill is passed leading to great changes in the production of processed foods.

1908-1915 - During the peak of the steam engine's popularity, only one farmer in twenty actually owns a steam tractor. Where steam power was used for threshing and plowing, most farmers usually hired custom operators to do the work for them.

1909 - Biologist Thomas Hunt Morgan, who had used the fruit fly to test Mendel's 1866 laws of inheritance, becomes the first to use the gene to describe the parts of chromosomes that control particular characteristics, setting the stage for genetically-altered agricultural products.

1909 - 1919 - Wheat acreage in the state rises by a factor of three during the decade.

1910 - Dearfield, a farming town east of Boulder County, is a Utopian community founded by an African-American resident of Boulder, O.T. Jackson. His dream is to establish economic and ethnic independence for African-Americans in Colorado. Proclaimed to have over 700 residents in 1921, Dearfield had only 12 in 1940. O.T.

Jackson offered the colony Governor Ralph Carr as an internment camp for Japanese prisoners during World War II, but nothing came of the offer.[5]

1910 – U.S Department of Agriculture discontinues giving free seed to farmers.

1910 - Most of the suitable water reservoir sites in the region are already built.

1910s - Greatly expanded Colorado ditch water usage leads to soil salinity increases that attract the salt cedar tree, an alien weed tree that sucks up huge amounts of water. By evening out seasonal flows and reducing spring floods, irrigation also creates an inviting environment for cottonwoods at the expense of cash crops.

1910 - The "Farmers Conference" at Ft. Collins resolves to get federal and state aid for rural Colorado road building, bonds for reclamation work, and to found the School of Agriculture at Ft. Collins, where chairs would oversee forestry and domestic science and poultry and dairy sciences. They call for a six-mile experimental grain growing area near campus, dairy industry extensions, and the establishment of a pure breed dairy herd and a model dairy barn and silo.

1911 - A potato failure occurs state-wide.

1913 - A blizzard dumps a total of 43 inches in just two days along the Front Range.

1913 - George McIntosh's wife Amanda dies at age 72. Several times a week George walks five miles from his house in Longmont to visit the Lohrs.

1914 - The tradition of Longmont's Pumpkin Pie Day Celebration ends. Once known for attracting large crowds, the event began to flounder in time, with the pies being made from canned pumpkin toward the end. One Longmont resident comes to describe it as "a party that left nothing in its wake but an unholy smear of pie crust and corruption (and it) generally was not conducive to the community spirit or civic morale." Reflecting the City Beautiful Movement[6] of the times, soon the fair gains a new life as "The Fair Beautiful," and becomes redirected under the positive influence of the County Extension Office. Its name is then changed to the Boulder County Fair, with its focus on education first and entertainment second, as well as crop improvement over cash prizes. It will begin setting an example for other Colorado counties to emulate.

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[5] James A. Michener Library website http://www.unco.edu/library/ARCHIVES/dearfield/history.htm
[6] A Progressive reform movement in North American architecture and urban planning that flourished in the 1890s and 1900s with the intent of using beautification and monumental grandeur in cities to counteract the perceived moral decay of poverty-stricken urban environments (Wikipedia).

By 1914 - The gasoline tractor is replacing the steam engine for threshing and plowing.

1914 - There are 39 silos in Boulder County, but by 1915 the total is 88!

1914 - 1919 - World War I rages in Europe. Americans get involved in 1917.

By 1915 - Only nine homestead plots are left in Boulder County.

Until 1915 - Sunflowers in America (the larger Russian variety, not the wild American version) are grown mostly in gardens for their seed heads to be used in poultry feed. But the sunflower's adaptability to high altitudes - where corn does not grow well - makes it, for some farmers, a good field crop at higher elevations. It is found to be a good forage crop, with higher silage yields than corn. It is also a good milk flow stimulator for dairy cows**.**

1915 - Longmont pioneer Bill Dickens is mysteriously shot in his Longmont home.

1916 - 1933 – The Eighteenth Amendment federally prohibits the manufacture, sale and transportation of alcohol. The Twenty-First Amendment repeals this law in 1933. Boulder County would remain dry until 1967.

1917 - As America enters World War I, President Woodrow Wilson appeals to Colorado's farmers, "Upon the farmers of this country…in large measure, rests the fate of the war and the fate of the nations." 1,570 "war gardens" are planted in Boulder County during the war.

1918 - The Left Hand Reservoir dam breaks for third time and the 16-foot high gush of water wreaks havoc on the roads, bridges, and mines in Left Hand Canyon. No lives are lost, but many lose their homes and the Left Hand Ditch Company is sued for $12,000 in damages.

1918 - A state "creamerymen's" association is formed as a technical clearinghouse for the dairy industry. The Boulder County Cow Testing Association soon follows, scoring milk and butter quality and grading cream.

1918 - The Mountain State Beet Growers' Association is formed primarily to educate beet growers about their relationships to the beet factory companies and to represent them in federal legislation matters.

December 1918 - The state's first Corn Show is held in Longmont. The grand champion of the show is an ear of "Minnesota 13," a variety that Boulder County extension agent H.H. Simpson, through the Boy's Corn Clubs of Boulder County, had been heralding

for several years. Because this "dent" corn variety matures early and grows so well in the short season at 5,000 feet, farmers from all over the Rocky Mountain States buy kernels later at the National Stock Show for one cent a kernel. The construction of Boulder County's silos has a direct connection to the development of "Minnesota 13." Storage silos begin to multiply in the County when World War I demands for cattle feed rise (The feed is needed to help increase the production of milk and meat.) In 1914, there are 39 silos - in 1919, there are 350!

1918 - The Spanish flu epidemic sweeps the world, leaving over 500,000 dead in the U.S.

1919 - The County Agricultural Agents form the Colorado State Farm Bureau to further agricultural extension work done by the agricultural colleges through the county agents and home demonstration agents. Although controlled by the extension agents, its officers are farmers who carry out the educational programs.

1919 - Longmont has 4000 residents and six major farming implement dealers.

1920 - The wheat and sugar beet industries employ 27% of the state's population and make Colorado a net exporter of foodstuffs.

1920 - The Colorado Wheat Growers association is formed. C.L. Hover of Longmont becomes a strong leader in the organization.

1920 -The Colorado Brand Book for 1920 lists nearly 40,000 registered brands and lists over 30,000 cattle and sheep owners in the state.

1920s - An agricultural depression in the early 1920s drives some farmers from Colorado and others out of the grain business. Those who continue growing grain are forced to sow greater acreage to maintain a stable income**.**

192? - Joseph & Eliza Wolff begin a fruit farm in north Boulder (north of Alpine St., east of Broadway St.).

1920 - Mechanized farming brings rapid change to Boulder Valley. By 1940 huge stationary threshing machines are replaced by combines.

1920s - Ted Allen of Boulder Valley becomes the world champion horseshoe pitcher.

1923 - Radio becomes valuable for disseminating livestock, potatoes, and fruit market news to Colorado farmers.

1923 - Boulder County helps Colorado rank 1st nationally in beet acreage and manufacturing, 2nd in the production of cantaloupes and head lettuce, 3rd in dry beans, 4th in cauliflower, 5th in grain sorghums, 6th in celery, and 7th in potatoes.

1923 - The "modern type" cream station is introduced, with a concrete floor, a floor drain, and minimum workspace. A corresponding regulation prohibits poultry handling within at least 50 feet of the cream station.

1924 - When George McIntosh dies, he is the oldest pioneer of the St. Vrain Valley Association.

1924 - The International Harvester Co. produces the first affordable, row crop tractor, "The Farmall," and the age of steam power is relegated to the past.

1924 - Ku Klux Klan influence in Colorado reaches its peak.

1925 - 1933 - Dry years.

1926 - A new state record for corn yield is set by David Eisele, a Boulder County farmer, with a yield of 112 and 1/2 bushels of "Minnesota 13" in a contest held jointly by the Boulder County Farm Bureau and the Longmont Chamber of Commerce.

By 1926 - The beet kingdom of Boulder, Weld, and Larimer counties is a key player in making sugar beets replace wheat as the state's number one cash crop, helping Colorado become the nation's leader in beet-sugar production.

1929 - The Niwot Bank fails, taking the savings of many local farmers with it.

1929 - Cold weather ruins Northern Colorado's beet crops.

1933 - 1938 - The local droughts of the Dust Bowl bury fence posts on Gunbarrel Hill. The Depression and expense of building upright silos prompts many farmers to convert to pit silos (excavations into hillsides) for storing their silage. Dust storms indicate an overextension of farming into areas best used for other purposes. They also indicate an over- emphasis upon intensity of farming operations. Farmers adapt to the Dust Bowl by beginning to strip farm vs. farming on wide-open lands.

Mid-1930s - Grasshoppers invade Boulder County.

1934 - Northern Colorado Water Users Association is formed to lobby for the diversion of water across the Continental Divide.

1935 - The Dust Bowl prompts federal aid by forming the Soil Conservation Service.

1937 - Congress approves the Colorado-Big Thompson Project for diverting water from the western slope to the Front Range. Construction begins in the 1950s.

1938 - Howard Morton plows the last virgin sod on Gunbarrel Hill.

1940s - Although larger combines were used earlier in the larger grain fields east of Boulder Valley, at this time Boulder County farmers begin using smaller combines to replace the stationary steam engines.

1941 - On Pearl Harbor Day, Japanese farmers worshiping in the Buddhist Church in Longmont are raided for investigation of spying. Their guns and cameras are confiscated.

1943 - 1945 - As most local sugar beet farmers leave to fight overseas, Mexican-Americans are actively recruited from Texas to work the beet fields and factories. German prisoners of war are held in Longmont and are also used as beet workers.

After 1945 - Following Word War II, floriculturists, specializing in carnations and roses begin to thrive in Colorado, but begin fading by the 1990s due to foreign competition.

1950s - The consolidation of county schools means there are fewer places for farm families to commune with their neighbors.

1952 - Longmont Foods opens. Later acquired by ConAgra in 1987.

Late 1930s - 1950s - After a slump in the 1930s, farm acreage in Colorado climbs to 40 million acres in the 1950s. Since then the development of high volume pumps and center-pivot irrigation has triggered a new boom in irrigated farming - and greatly diminished the region's underground aquifers.

1953 - George Lohr dies at the age of 88 and Shorty Lohr quits farming to care for his mother who is in poor health. The family leases the farmland to neighbors.

1954 - Cold weather ruins northern Colorado's beet crops.

1964 - Minnie Lohr dies at the age of 87. Her son, Shorty, drives a tour bus to Rocky Mountain National Park for a while, then takes a position with the Boulder County Road Department until his retirement in 1974.

1967 - According to Left Hand Ditch Company testimony to the Colorado Water Pollution Control Commission, the uses for Left Hand Creek at this time are "irrigating

such principal crops as alfalfa hay, native hay, planted grass hay, corn, barley, sugar beets, oats, and native and planted pastures, (with) a small part of it for irrigating golf courses."

1977 - Beginning in the 1960s, higher labor costs, disputes between growers and sugar companies, and cheaper imported cane sugar dooms what was once the state's mightiest food industry. In 1977 the Longmont sugar factory closes and corn and other crops replace sugar beets as the valley's preferred cash crop.

1980s - The growth of specialty crops by truck farmers in Boulder and surrounding counties helps revive the old farmers' market in Boulder.

1985 - Shorty Lohr sells his pioneer Lohr/McIntosh family farm to Boulder County and establishes a trust fund to help make part of the site a farming and public educational resource. In commenting on the rapid residential development in his neighborhood, he is quoted as saying, "One of these days, people in this country are going to have a nice home and an empty gut because the farmland is going to disappear."

1991 - Shorty Lohr dies at the age of 91.

1998 - The Stroh-Dickens Barn is moved on site.

May 12, 2001 – The Agricultural Heritage Center at the Lohr/McIntosh Farm celebrates its grand opening. Coincidentally, this event takes place 164 years to the day after the birth of George McIntosh.

2002 – The McIntosh Barn built in 1881 undergoes extensive restoration funded by the County and the State Historic Fund.

2005 – The Agricultural Heritage Center introduces two annual special events: Crafts and Trades of Olden Days and Barnyard Critter Day.

2007 – A granary was moved from the "Quicksilver" property to the AHC. It was modified with loafing sheds and is now used as a feed and tack shed for the corrals.

2009 – A Smokehouse similar in design to one discovered on the site of the 1878 McIntosh house was built.

2009 – The Stroh-Dickens' barn underwent a roof restoration, replacing asphalt shingles with cedar shingles.

2010 – Following a generous donation of honey harvesting tools, the "studs-out" granary was converted to a Honey House exhibit.

2011 – The Agricultural Heritage Center celebrates its 10th anniversary. Much growth has occurred in both programming and site features. All major construction has been finished, livestock pens are full, and exhibits begin a 2 year replacement cycle.

2012 – The Lohr Farmhouse underwent a roof restoration, replacing asphalt shingles with cedar shingles.

2014 – Long awaited landscaping plans were implemented and the AHC received in-ground irrigation and lawn, making the site more inviting to visitors.

The Homestead Act of 1862

Planting the Seed for Boulder County's Agricultural Settlement

The discovery of gold at Gold Hill in 1859 was the impetus behind a hopeful wave of settlers that moved to Boulder County in search of wealth and prosperity. Many of those who found prospecting difficult or unrewarding soon turned to ranching or farming and were pleasantly surprised at their relative success. Elsewhere in Colorado and the "New West," other disenchanted miners were trying their luck with agriculture and finding a market for their goods in the mining camps of their more fortunate brethren. Ambitious businessmen and officials of the developing territories foresaw even greater opportunities for growth among their vast natural resources. However, despite the tales of gold-topped mountains and lush, inexpensive land, most Easterners were reluctant to cross the vast plains of the "Great American Desert" to the new frontier. Then in 1862, President Abraham Lincoln signed the Homestead Act. This made 160 acres of free land available to those with the following qualifications:

- Payment of a ten-dollar registration fee;
- Twenty-one years of age, or head of a household;
- Willingness to swear that the land was for his/her personal use; and
- Occupation and improvement for five years.
  (After six months, the land could be purchased for $1.25/acre)

This action marked a new direction in federal land use policy and opened the West to a tide of optimistic and eager (though often unprepared) settlers whose determined efforts helped define the character of the American West.

The passage of the Homestead Act may be viewed today as an obvious and beneficial step in the overall exploration and settlement of our country. In fact, Congress had debated the issue of granting free land for many years. The roots of the opposition ran back to the original thirteen states and continued through the 1800s in the battles over slavery.

Following the Revolutionary War, the states had ceded all land claims beyond their borders to the federal government. This basically included all the land east of the Mississippi River. The profitable sale of land was viewed as one way for the new country to finance federal operations. This policy was met with strong opposition from farmers, who wanted the government to at least sell land at a reduced price. Congress created rules for the disposition of land starting in 1780. At first just large townships were allowed, which were essentially unavailable to most individuals. In 1796 the minimum acreage was reduced to 640 acres, with a $2.00 minimum price per acre by auction. The intention was to sell land to speculators at a profit to the government. This

met with little success, as most settlers didn't care about the law, nor could they afford to buy. "Squatters" became commonplace along the frontier. Over the years, concerns about the ability of farmers to buy the land they needed reduced the minimum acreage to 320, 160, 80 and finally 40 acres in 1832. The price was also reduced to $1.25 per acre.

Although the Louisiana Purchase in 1802 and other agreements had opened up vast areas for settlement, the first half of the nineteenth century did not see a dramatic migration of eastern residents. At the time, land was still plentiful in the East, and various treaties forbade settlement in Midwest areas. Still, the prospect of wealth and adventure lured trappers, traders and miners, who returned with stories of amazing scenery and animals, and opportunities to strike it rich. The Great Plains was viewed at that time as a vast desert: inhospitable to man and worthless for farming. With this in mind, in 1832 President Andrew Jackson argued that land should be sold at cost, because "it is labor alone which gives real value to the lands." Since profits from the sales were distributed to the eastern states, his idea was not well received.

During this period the practice of squatting on land had become widespread. The theory of many settlers was that their sustained presence on a parcel of land that they improved and maintained gave them the right to ownership. Many ended up being cheated or driven off the land when the government actually put the surveyed parcel to auction. In 1841, Congress passed the Distribution-Pre-emption Act, which gave anyone living on a government-surveyed plot the first opportunity to buy once a sale had been scheduled. Unfortunately, even at $1.25/acre most settlers could not afford to purchase property, and greedy speculators, at the purchasers expense, frequently made loans of 50 – 100% interest. Other times, local circumstances and personal connections would delay an auction, during which time wealthy speculators would survey and assess the area, then snap up the best properties with no intention of personally settling or improving the land. Also, land sales drained what little currency there was from the region, stifling trade.

As the widespread but illegal custom of squatting evolved into a legal, guaranteed right, the notion of outright gifts of land was gaining popularity in certain circles. Railroad companies in particular were interested in expanding to new markets and hoped that offers of free land to settlers (or to themselves!) would fuel such growth. In 1845, the first free homestead petition was presented, with its sponsors asking that Congress pass "with all convenient haste a law by which every citizen, who may be desirous of cultivating the earth for a living, shall be enabled to enter upon the public lands and occupy a reasonable sized farm, thereon, free of cost." The homestead law had become a national movement. The Democrats worried that current prices barred poor men from the market, while the Whigs argued that charging even lower prices would open public land to unscrupulous speculators. Newspapers, politicians and petitioners told of the unending struggle between the wealthy capitalist and the poor

but honest, hard-working settler. As anxious settlers entered the frontier ahead of any governmental surveys, law enforcement agencies or land offices, boundary disputes and other concerns were handled by extra-legal organizations. Claims clubs were formed, ostensibly with the purpose of helping "pre-emptors," often with the result of reducing some of the bidding wars between settlers and speculators. Many times, however, these organizations helped speculators pool their resources to outbid (or physically threaten) individuals. Legal claims were often disregarded, while those deemed "claim jumpers" were beaten, chased off or killed. Meanwhile, some in the east argued that agrarian dispersal was not a worthy social goal, but calls for a carefully controlled opening of the public domain were neither enforceable nor politically possible.

As more westerners clamored for a free homestead law, what might have been an East/West battle over land policy became a North/South battle over slavery. In 1820, the Missouri Compromise made slavery illegal north of the southern border of that state for any new states. This Act was later declared "inoperative and void" by the Kansas/Nebraska Act of 1854, which would allow residents of each new state to decide the slavery issue. This controversial act revived the bitter disputes that had been quelled by the Compromise of 1850, and now the issue of a homestead rush by either pro- or anti-slavery settlers was the major concern.

To compound the problem, a financial panic in 1857 reminded the West of its continued dependence on Eastern support, and pre-emption sales in the "northwest" (Minnesota and Wisconsin) had frontier settlers scared and mad. As the Democrats split on the slavery issue, their president, James Buchanan, would not support a homestead law, vetoing one in early 1860. The Whig party was disintegrating, and the new Republican Party nominated Abraham Lincoln for president. Lincoln supported the concept of free homestead land, and with the exodus of southern Democrats from Congress after his election, the passage of the Homestead Act was assured. Lincoln signed the law on May 20, 1862, which provided that any one twenty-one years old, or head of a household could claim 160 acres with a $10 filing fee. He must swear the land was for settlement and cultivation, and after five years of improvements title to the land would be his. Or, after six months the land may be purchased for $1.25/acre.

There were some rumblings against the bill from border states and some eastern Republicans who wished to keep the land as a sign of the country's good credit. But stronger arguments were made for the amount of growth that would be achieved, all with an eye towards the sales tax revenues that would be created with increased production and consumption of goods.

Throughout the 1850s and 60s Congress had granted railroad companies 181 million acres of land to encourage westward expansion. Their desire for customers along their

lines made them huge boosters for the Homestead Act. As territories became states, they too were given federal land, usually reselling or renting the property to raise money for schools. Most states set up promotional bureaus to lure settlers from the east. Into the 1870s and 80s, immigrants were also flowing in from various countries in Europe that were experiencing famine, overpopulation, political unrest and religious persecution. In particular, tens of thousands of Mennonites came from Russia to escape persecution from a new czar. The young states and railroads dispatched agents to recruit dissatisfied Europeans with promises of free land just waiting to be claimed. C.B. Schmidt of Santa Fe Railroad in Kansas was personally responsible for 60,000 German immigrants settling along their line. In addition, various ethnic agencies in New York, Philadelphia and other cities helped organize large groups of immigrants.

Following the Civil War, thousands of displaced and discouraged southerners, weary northerners and freed blacks looked to the West for the start of a new life. Many eastern towns lost a large population of young men to the war, and as other men moved west, many women of marrying age ventured west also. Soon the border towns in Missouri, Illinois and other states realized they could profit by advertising themselves as start-off points with all the necessary supplies. Great liberties were taken in describing how wonderfully productive and easily accessible the riches of the West were. For example, one story described how a man had made a type of sled, which scraped up the ground below him. When he rode his contraption down Pike's Peak, the back of the sled filled with gold! Another common belief was that somehow, "rain followed the plow," and with the ever-increasing population farming in the West got easier. One Colorado newspaper described how "the increase of railroads and also the increase of activity on the roads has the effect of producing more showers. The concussion of the air and rapid movement produced by railroad trains and engines affects the electrical conditions of the atmosphere." The 1870s were also unusually wet, with bumper crops - and promoters made the most of it with talk of "permanent climate change."

Many people found ways to cheat and distort the intention of the law for their own benefit as well. Civil War veterans were given transferable homestead rights along railroad grants that many sold to speculators for a fraction of their true worth. Speculators could then sell the claim to the railroad company, or to states for future resale or lease. Forged and fraudulent land warrants were also used to melt away the public domain. Railroad and large land companies would pay "dummy" settlers who would file claims, live there for six months, buy the land for a low price, give it to their employer and move on and do it again. Economic forces outside the United States had effects on settlers as well. In 1869, news of the completion of the Suez Canal quelled celebration over the completion of the first transcontinental railroad. Now much of the trade between Europe and the Orient would never reach America, forcing railroads to rely more on (and manipulate) domestic markets. Accounts of homesteaders being run off by hired guns for ranching, mining or timber interests were not uncommon. Because

of such abuses, Congress abolished the Distribution-Pre-emptive Act in 1891. Supporters of the Homestead Act were disappointed also, as subsequent acts by Congress granted much of the best lands to railroads and states for agricultural colleges. Even so, from 1862 to 1900 between 400,000 and 600,000 families settled farms and new homes under the act.

With all the enthusiasm, optimism and hope surrounding the advertisement of the Homestead Act, invariably many settlers were caught unprepared for the harsh reality of frontier life. The Homestead Act assumed the average family farm should be 160 acres, but this was too small for ranching and too large to easily irrigate. Dryland and valley farming methods were unfamiliar to most settlers. Likewise, the lower annual precipitation rates doomed traditional farming techniques, and it took years for settlers to comprehend the weather cycles and discover which crops could be grown successfully. Drought, grasshoppers, dust storms, prairie fires, tornadoes and Indian troubles, combined with long supply lines and isolation caused many would-be residents to return east in frustration. Those who stayed committed themselves to improving their property and creating ties with neighbors and towns. There was a sense of pride and self-reliance and also camaraderie that developed in the West among those who decided to stay. Although the living was hard, the perceived (and anticipated) personal rewards of frontier life motivated thousands to settle in Colorado.

For most homesteaders, there was a regrettable lack of wood for building shelter. The first homes were often dug out of the side of a hill or made with the one resource the prairie had a lot of – sod. Sod houses were warm in the winter and cool in the summer and could often be much larger than dugouts. Unfortunately, they leaked during storms, and snakes and insects were often in residence. The next step after building a home was breaking the ground and planting crops. Homesteaders needed a special sod-busting plow, several farmhands and six or more yoke of oxen to break the tough, wiry roots of the prairie grass. Most settlers had only one yoke of oxen, and would turn to established neighbors or hire others to help prepare the fields. (More settlers in an area meant the possibility of churches, schools and businesses; to this end many residents were happy to assist newcomers.) Once this backbreaking chore was done, corn was usually planted. Women and children would help with this task, and then the women's attention would turn to feeding and clothing the family. Grain sacks were used for clothes, while milk and eggs might be traded for calico to make a dress. Meals were simple and repetitive; strictly a function of what was being grown or raised on the property. A comment from one frontier settler regarding the menu of the time: "When we had chicken fixins and flour doings in the same meal, we knew we were on our way to prosperity." Another homesteader described the extremes of the West this way: "When it rains, it pours; when it blows, it storms; when the crops succeed we have enormous yields, and when they fail, failure is complete."

Constant improvements in technology and continued Indian containment helped push settlement. In 1873 barbed wire was introduced as a cheap substitute for wooden fencing and became a weapon in the increasingly bitter disputes between homesteaders and ranchers. (The open range most cattlemen were used to was being claimed and fenced off by waves of settlers) Severe winters and drought in the 1880s virtually eliminated free range ranching in the West and drove most Coloradoans from the eastern plains. During this time, Congress passed other laws to modify and complement the Homestead Act. For example, in 1877, the Desert Land Act allowed 640 acres to those providing irrigation to their claim. (Reduced to 320 acres in 1890 amid widespread evasion of the law's requirements) The Carey Act in 1894 gave land to states to promote and develop irrigation enterprises. In 1901, the significant District Irrigation Law allowed for the creation of districts to sell bonds and tax beneficiaries for irrigation projects and water use. During this time, most of the land was actually acquired by speculators and others seeking control of natural resources. In fact, of the public land that passed into private control between 1862 and 1900, only between 11 and 17 percent went to homesteaders.

By 1915, there were only nine homestead plots left in Boulder County. Although the Homestead Act remained on the books for several more decades, Boulder County's pioneers had claimed even the most marginal land early. As the early settlers learned more about how to farm the arid region, better methods allowed for greater production. By the turn of the 20th century, farming was becoming a more thoughtful, scientific process. In 1907 the International Dry Farming Congress formed in Denver to promote irrigation methods and crop selection suited to the arid climate. The increase in machinery and growth of towns like Boulder and Longmont allowed local farmers to sell more products to a steadily growing population.

The next section describes some of the several supply centers, railroad stops and platted towns that grew, prospered and then disappeared over the years. Some settlements were "absorbed" by other towns, while others simply faded away. Under-standing where and when Boulder County's early settlements were located will help citizens comprehend the fascinating struggles and rewards of pioneer life.

Early Boulder County Agricultural Settlements

Homesteading on the plains of Boulder County began in the 1860s, and several small towns grew to serve as supply centers for the surrounding farmers, ranchers and miners. Often a town had only one store or blacksmith shop; the presence of a schoolhouse was a sign of more permanent and prosperous residents. A post office was the strongest indication of a thriving town, and there are several locations in Boulder County that used to provide mail to residents that have since faded out of existence.

Some towns had quarries or mines, but were surrounded by predominantly agricultural property. With the arrival of the railroads throughout the 1870s, many of the stops along their routes became centers of trade, if not actual towns. The trains served residents with mail, personal transportation and access to markets in Denver and beyond.

Following is a listing of the more successful, though perhaps short-lived, settlements in eastern Boulder County that are no longer recognized by modern residents. (As the focus of the Agricultural Heritage Center is on the time period 1900 – 1930, these descriptions regarding earlier settlements are somewhat brief. Please refer to the bibliography for a list of sources for more information.)

Altona*
First settlement: 1861
Post office dates: 1879 – 1916
Population peak: 1887: 100
Location: Mouth of Left Hand Canyon
*Also called Modoc, then Ni Wot, until 1879

Altona was first settled in 1860 by a group of four road companies with the intention of building a toll road from the town at the mouth of Left Hand Canyon to Central City via Gold Hill. The town at that time was known as Modoc, and businesses included a bank, restaurant, blacksmith shop, grocery store and a stone quarry. The road company failed, however, and the road was never completed. Around this time the town was also referred to as Ni Wot. Through the 1870s, the surrounding agricultural community supported the businesses and in 1879 the name of Altona was chosen with the opening of a post office. The name changed because another town between Boulder and Longmont had officially claimed the name Niwot. A schoolhouse was built in 1883, and in the 1890s the Altona Grange Hall provided educational and social events to the surrounding rural community. The Grange has been preserved and is still located in Boulder County; it can be found on Nelson Road east of the Foothills highway. The schoolhouse was included in a purchase of the second half of Heil Valley Ranch and will be undergoing restoration work for future interpretation.

Burlington
First settlement: 1859
Post office dates: 1862 – 1873
Population peak: 1870: 130
Location: Confluence of the Left Hand/St. Vrain Rivers

Burlington began in 1859 with one log cabin built by Alonzo Allen at the confluence of the Left Hand and St. Vrain creeks. Soon a school, two blacksmith shops, a drugstore,

post office, boarding house and several saloons were serving area residents. A road connecting the town with Valmont and Boulder carried wagon and stagecoach traffic. The Overland Stage Company contracted with Alonzo's wife, Mary, to operate the Allen House hotel and stage stop, a very successful venture. The arrival of the Chicago Colony and the creation of Longmont just north of town in 1871 effectively ended Burlington's existence. Most residents and businesses eagerly moved to the new town; bringing their buildings with them!

Valmont
First settlement: 1860
Post office dates: 1865 – 1901
Population peak: uncertain
Location: Confluence of North and South Boulder Creeks

Valmont began in 1860 when Tommy Jones built the Valmont House, a hotel and stage stop at the confluence of North and South Boulder Creeks. In 1865, the town was platted by Boulder County Judge A. P. Allen, and soon a flourmill, blacksmith shop, grocery store and schoolhouse as well as two churches were built. A drugstore, a brick factory and the first newspaper in the county along with several homes added to the town's prestige and its growth soon outpaced Boulder. There was talk of making Valmont the County seat at this time, but the voters never approved it. The story goes that rivals in Boulder got the editor of the *Valmont Bulletin* drunk and stole the printing press, only to start up the *Boulder County Pioneer* a month later. Over time, businesses relocated to Boulder, although a few of the old structures are still standing around Valmont Road.

Ryssby
First settlement: 1869
Post office dates: none
Population peak: uncertain
Location: On North 63rd, ½ mile south of Nelson Road

Ryssby was settled by Swedish immigrants in 1869 about five miles east of Left Hand Canyon. Members of the Smoland Colony chose land near the foothills because fertile soil was typically located there in their homeland. Unfortunately, the rocky ground was only suitable for grazing. The town was never incorporated, and did not grow much beyond a school, blacksmith shop and the first Lutheran church in Colorado. Interestingly, when the church was completed in 1882, the first minister was F. Lagerman, who owned land and a reservoir south of Ryssby. The Boulder County Parks and Open Space Department now owns Lagerman Reservoir.

Marshall

First settlement: 1859
Post office dates: 1878 – 1890, 1892 – 1893*
Population peak: 1887: 95
Location: 2 miles southeast of Boulder
*Post office under the name of Langford 1895 – 1899, Gorham 1899 – 1942

Marshall started in 1859 when William Kitchens discovered coal and began mining operations a few miles southeast of Boulder. His "wagon mine" supplied local residents with coal for domestic use: clients would drive their horse and wagons to the Washington Lode and haul away what they needed. Joseph Marshall purchased the mine from Kitchens in 1866, and in 1868 he received a land grant that gave him legal rights to all the coal lands around Marshall. The town was a rough place, with saloons, poor living conditions, and many men frustrated with working in the harsh and dangerous mines. As Marshall grew, the town was visited less and less by area farmers. However, it did become an important industrial center, supplying fuel for heating, steam engines, and railroads.

Pella
First settlement: 1860
Post office dates: 1871 -
Population peak: uncertain
Location: Just south of Hygiene

Pella was one of the first settlements in Boulder County. George Webster first homesteaded here in 1860, and at that time Pella was called "Laramie Crossing" or "Upper Crossing." This was a reference to the point where the Overland Trail crossed the St. Vrain River, just south of present day Hygiene. The stagecoaches ran between Denver and Laramie, Wyoming and on to Salt Lake City, Utah. Pella served travelers and local farmers with a school, store, blacksmith shop, post office and grange hall. In the early 1880s the Hygiene Sanitarium was founded north of Pella, and gradually the business and social activity moved into the town of Hygiene.

Other notable settlements:

Canfield
First settlement: 1875
Post office dates: 1878 – 1906
Population high: 1887: 153
Location: Northwest of Erie

Davidson:

First settlement: 1874
Post office dates: 1874 – 1878
Population peak: uncertain
Location: North of Louisville

Noland
First settlement: 1890
Post office dates: 1890 – 1901
Population peak: 1891: 1000
Location: Northeast of Lyons

As previously mentioned, several railroad stops were significant to residents, at least to the extent that they were named and included on maps of the period. Some stops were even platted but were not very successful in achieving much growth. To help show the breadth of activity in eastern Boulder County, the following is a list of stops that could be found on late 19th and early 20th century maps. Details to these locations are few, but their existence did serve many of the county's early residents.

Boettcher	Chapman	Fort Chambers	Liggett
Boone's	Clarkston*	Goodview	Mitchell
Burke	Clifton	Highland	Moray
Burns	East Lake	Irvington*	Northrop
Capitol Hill*	Eversman	Lakeside*	Tower Junction
Whiterock			

*Indicates a platted town

As Boulder County continued to grow into the 20th century, several towns and settlements were evolving into the communities we know today. There was often strong competition between towns to acquire new businesses, attract new residents and generally promote themselves as worthy of recognition. The following section details the conditions from the turn of the century through the 1930s in those towns that have endured to this day.

Successful Agricultural Communities

Growing Boulder County into the 20th Century

With the advent of railroad transportation, improvements in machinery and an increased understanding of dry land farming methods, agriculture in Boulder County

was a key component to the overall successful growth of many communities at the turn of the century. As more successful and relatively affluent citizens looked to shape their towns, cultural, religious, architectural and educational improvements began to distinguish the business and residential centers from the surrounding countryside. The towns of Boulder, Longmont, Hygiene, and Niwot experienced increases in population as well as social, political and commercial activity to complement their agrarian beginnings. Coalmines drove the growth of Louisville, Erie, Lafayette, Superior and Broomfield despite agriculture surrounding these towns. Lyons also served ranchers and farmers, but had its beginnings in rock quarrying. This section describes the conditions that existed in those towns one hundred years ago, and what life was like in those communities during the first three decades of the 1900s.

BOULDER

A visitor to Boulder at the beginning of the 20th century would notice a diverse population of cowboys, farmers, miners, shopkeepers, businessmen and students. Impressive churches, comfortable hotels and elegant homes shared the streets with saloons, stables, railroad depots and blacksmith shops. By this time, Boulder had been the home to settlers serving the local miners and farmers for forty years. The city was incorporated in 1871, and now Boulder's population was nearing 7000 residents.

The business district was centered near 12th (Broadway) and Pearl, between the residential areas of University Hill and Mapleton Hill. Shoppers could buy just about anything they wanted in town, including gourmet foods, diamond jewelry, perfumes, fancy clothing and smoked meats as well as materials for making dresses, fine linens and medicines of all kinds. Parades and community picnics were frequent. The Curren Opera House (Boulder Theatre) hosted music concerts, Shakespearean plays, Christmas carols and silent movies. Electric streetcars were the most efficient method of public transportation within the city, with routes between Pearl Street, University Hill, Chautauqua and the railroad depots. From 1908 to 1926, the Denver + Inter Urban Train made 16 daily round trips between Boulder and Denver, through Louisville, Broomfield and later, Marshall and Superior.

At this time, the city was in transition, as many citizens were looking to promote the area as not only a business hub, but as a tourist destination as well. In response to the destruction of the 100–year flood in 1894, the first decade of the new century saw many prominent buildings erected in north-central Boulder, on higher ground. St. John's Episcopal Church, the Hotel Boulderado and the Carnegie Library are a few examples of the city's healthy recovery and self-image after the flood. To obtain the best drinking water, the city purchased first the watershed of and then the entire Arapahoe Glacier. A pipeline transported the 99.9% pure water to the Chautauqua and Sunshine reservoirs,

and drinking fountains in town read "Pure Cold Water from the Boulder-Owned Arapahoe Glacier." (The only one remaining can be found at the Hotel Boulderado.)

The national Chautauqua movement had come to Boulder in 1898, and the auditorium and park were launched to bring educational, cultural, recreational and religious programs to the community. Several events were held during the summer at the park, and today the Chautauqua in Boulder is the only one west of the Mississippi. "Sanitary resorts" had gained in popularity around the country as well, and the Seventh Day Adventist Church completed the Boulder Colorado Sanitarium in 1896. This popular destination was located at the mouth of Sunshine Canyon (now the Mapleton Center of the Boulder Community Hospital). It was billed as a resort that combined the features of a hospital, country club, religious retreat and spa in an atmosphere of reform and asceticism. Ideal guests were overweight women and overworked men.

In 1907, Isaac Earl, a member of the Better Boulder Party, was elected mayor with strong support from the Women's Christian Temperance Union. He was determined to make Boulder "modern and progressive" with a new focus on culture and religion. All saloons closed that fall, and Boulder remained "dry" until 1967. The brothels soon disappeared, and the Boulder Commercial Association's new motto was Boulder – "The Place to Live." The citizens even approached steel tycoon Andrew Carnegie who subsequently agreed to help finance a library for the town, modeled after the recently unearthed Temple on the Illissus in Greece. However, even though Boulderites referred to their city as the "Athens of the West," many aspects of its frontier roots were not quickly erased. The city streets were not paved and often poorly lit. There was the frequent complaint of livestock roaming "at large" (as well as dogs!) and downtown still had a good share of stables, blacksmith shops and feed stores. On the other hand, the image of Boulder as a more cultural city was enhanced by visits from numerous celebrities: composer John Phillip Sousa played a stirring post-World War I program at the unfinished Mackey auditorium in 1919. Helen Keller stopped on her lecture tour as well.

With the advent of automobiles, affluent residents and tourists began motoring to more distant locales on their own. The trains began to lose riders, and trucks began to carry more of the freight. Gradually the horse-drawn wagons and stagecoaches were replaced and several railroads went out of business in the 1910s and 1920s.

The continued growth of the University of Colorado encouraged a second construction boom in the 1920s. Families of students moved here as well as professors and their families. Students and faculty attending CU were asked each year to bring any kind of tree and plant it on campus, a tradition that helped to fill in "the void of the prairie." Several large sorority and fraternity houses date from this period.

Although Boulder was still surrounded on the north, east and south by farms and ranches, by 1920 expansion had crept north as the population grew outward from downtown. North of present day Alpine and east of Broadway was Joseph and Eliza Wolff's fruit farm, and the southern half of their 160-acre homestead became Joseph Wolff's Sub-Division. Other neighboring farmers in the growing "North Boulder" region also developed small subdivisions as demand for housing grew over the following years. This marked the beginning of a new trend for the county - previously productive agricultural property being sold for housing developments. On the southern outskirts of Boulder, a successful prospector turned his wealth into a productive homestead farm. William and Ida Martin grew Timothy hay and raised cattle, horses and chickens. This area later became the Martin Acres subdivision. Almost all of Boulder's growth from this period through today has taken place through the acquisition of land originally homesteaded by the early 1900s.

LONGMONT

Unlike other towns that developed around a few pioneer settlements, Longmont was a completely planned community with 640 acres mapped out before any settlers arrived. In the late 1860s, the Chicago-Colorado Colony began scouting for an area to build a town that would provide residents with a new home, a healthy lifestyle and productive soil. Organizers sold memberships to those Chicagoans who promised not to serve liquor in the new land. Whereas mining towns simply "sheltered" humans exploiting a resource, Longmont intended to "support a farming community, an enduring relationship with the land." In 1871 the first new residents moved onto property a few miles north of Burlington, and quickly the town became the agricultural center of the county. Nearby residents of Burlington were willingly absorbed by the new community; some actually moved the homes to be closer to the opportunities Longmont offered.

Initially, several large-scale irrigation and construction projects were planned, but the chief promoters stayed in Chicago, which delayed or postponed many achievements. The arrival of the railroad in the 1870s as well as the increases in local farming helped boost Longmont's success, and the town was incorporated January 7, 1873. Nearby quarrying in Lyons and coal mining to the south put the growing town in the center of a lot of trading activity. A large cannery was opened in the 1890s to serve the surrounding vegetable farms, and unlike other towns that relied on reservoirs for water; Longmont had actually constructed elevated water tanks. (Irrigation ditches were also used.)

The turn of the century saw an influx of Japanese and Mexican migrants joining the German and Scandinavian farmers around Longmont. Perhaps the most significant addition to Longmont's agricultural status was the introduction of the sugar beet, and

subsequent processing facilities built to market the vegetable. During this time, tractor mechanization, dry farming methods and crop selection was improving dramatically. Seasonal workers would arrive each summer to work the fields, and then move on to Texas or California to work during the winter. Each year, however, more would stay and add to Longmont's growing population. Longmont also became the home to the county fair during this time. Boulder was focusing more on the horse-racing/entertainment value of the annual event, and Longmont offered to host the gathering with the intention of keeping the spotlight on agricultural achievements, contests and technological advances. The efforts to meet demands during World War I were followed by the falling prices of the 1920s. Many farms that expanded to meet inflated demand and prices found they could no longer support themselves. As farmers struggled to use more efficient yet profitable methods, the Depression took its toll on the entire county. Longmont–area farmers proved quite resilient, planting potatoes, alfalfa, beans and peas with the help of the hardworking migrants, who helped defined the way of life in Longmont after the turn of the century.

HYGIENE

The unincorporated town of Hygiene evolved from the settlement known as Pella in the late 1880s. Jacob Flory, a local minister, built a sanitarium north of the small community in 1882 and named it the Hygiene House. Patients were treated with mineral water carried from a spring on nearby Rabbit Mountain. This water, coupled with blue light from sunlight passing through the blue glass windows of the Hygiene House was thought to cure anything. A surge of tuberculosis patients in the 1880s and 90s saw Hygiene grow slightly with temporary residents. After the turn of the century, the few stores, a school and a post office maintained a steady but quiet business with the surrounding farm families. By then the sanitarium had been converted into a luxury hotel, attracting visitors from the Denver – Lyons train. Eventually the hotel failed, and the building was razed in 1926.

The Church of the Brethren had a strong following in Hygiene, and the congregation was known locally as the "Dunkard Church" because of their practice of baptizing new members by immersing them in the St. Vrain River. The church had a definite influence on the kinds of businesses located at the small town's crossroads. The dairy farmers, cattle ranchers and corn growers living in the rural Hygiene area would usually make a trip to Longmont or perhaps Boulder or Niwot if they were looking for a saloon or fancy clothes, or to attend bigger events such as circuses, music concerts or fireworks.

NIWOT

Niwot came into existence with the creation of a depot along the Colorado Central Railroad line in the 1870s. The surrounding agricultural area was served with

convenient mail, freight and passenger service, and the train provided excellent access to markets in Boulder, Longmont and beyond. After the turn of the century, Niwot continued to thrive and grow as new businesses were started and surrounding residents found they could have most of their needs met in the small but bustling town. The Niwot creamery opened in 1910, a successful co-op organized by local dairy farmers. Instead of shipping milk to Longmont, they could now haul to their own milk station in town. During this period, most businesses either relocated or started new on the east side of the railroad tracks. A flourmill, hotel, post office, bank, 3 grocery stores, a blacksmith shop, pool hall, drugstore and a news paper office showed Niwot to be a very resourceful town.

The churches and grange hall also provided places for socializing, as well as the bandstand erected in 1912, which hosted local farmer John Hill directing his 18-piece band of men and boys of varying degrees of talent. As might be expected by such a busy town, soon some hitching posts were removed for gas pumps as the popularity of the automobile increased. Niwot residents' diverse business and agricultural foundation would prove to be crucial as the community struggled through the economic crash of the early thirties.

LAFAYETTE

Lafayette and Mary Miller moved to Colorado in 1864 and first settled along Rock Creek where they opened a hotel and stage stop. In 1871, they moved north towards present day Lafayette and began a successful homestead farm. Mr. Miller died in 1878, but his widow and sons kept the farm running in good condition. In the mid-1880s Mary Miller asked John Simpson of Louisville to try mining on her property, and when he met with great success, the Simpson Coal Mine was started. Realizing the potential of the discovery on her land, Mary platted the town in her husband's name in 1888. Miners and their families began arriving soon after, and the town was incorporated the following year. By 1896, five very active mines were in production, making Lafayette one of the larger mining towns in the area. By the early 1900s, the population was around 1300, and several stores, markets, stables, hotels and churches were in operation. The town had 3 separate railroad lines, water works and electric lights in many homes. The Lafayette Opera House was open for business, and several boarding houses were full of young, non-native, often single men lured to the mining jobs.

The town, while surrounded by farmland, was predominantly built around serving the needs of the miners. However, in the summer when work in the mines was scarce, many miners would take jobs on the farms. This seasonal ebb and flow of labor worked well for most families, and the farms could provide some income when the miners were on strike, which happened frequently. State militia and federal troops were called in to quell the riots and destruction that marked many strikes. In 1927, mine guards shot

down six unarmed men, and tensions were at an all time high as more troops were called in. To understand the dangerous and frustrating struggle of the early 20th-century coal miner is to understand the history of towns like Lafayette.

SUPERIOR

Around 1860, William and Emmaline Hake took a covered wagon from Superior, Wisconsin to Colorado and homesteaded about two miles from present-day Superior. They lived out of their wagon while they built their house, bought cows, planted an orchard and William built a cider press. In 1895 William discovered coal on his property, and he built the Industrial Mine as well as a hotel. It is said he named the town after his description of his coal, although the obvious reference to his hometown cannot be dismissed. The Boulder County Directory from 1896 lists three active mines, 29 mining families and 15 farming families. By 1904, Superior had incorporated and soon was a stop along the Denver and InterUrban rail line between Boulder and Denver. A grocer, butcher, blacksmith and mechanic (once automobiles arrived) shared space on Charles St. (named after William's son) with stables, boarding hoses, a livery and post office.

Life in town was driven mostly by the mining operations; frequent strikes and accidents were offset by wagon or train trips to Louisville or Boulder; town picnics and baseball were popular as well. Catching frogs for fun, food and biology study in school remained a constant pursuit. For many years, there existed a springtime rivalry between the boys of Superior and Marshall regarding burros. The Eldorado Springs Resort would offer burro rides in the summer to tourists, and let the animals loose for the winter in the canyon. The boys would chase and capture the burros in the spring and lead them home, with the intention of gathering more than the other town. The resort always knew where to go for their burros, and the competition was a source of pride for the youngsters.

In 1945 the Industrial Mine closed, after almost 4 million tons of coal from shafts as deep as 295 feet had been removed. It remains on the county's most successful mining operations.

LOUISVILLE

In 1869 David Kerr homesteaded 160 acres he had settled a few years earlier, and over the next few years, a few other homesteaders as well as the Colorado Central Railroad would claim parts of what was to be come Louisville. In 1877, Louis Nawatny homesteaded and soon discovered coal on his land. He immediately purchased property adjacent to his, and found financing from a Golden Businessman, C. C. Welch to open a mine. Nawatny also began platting land for a town the following year in

anticipation of commercial profits. He registered the town in his own name and began selling plots. As businesses and residents began to fill the town, Louisville incorporated in 1882

By the early 1890s there were several active mines in the Louisville area, and the train stop between Denver and Longmont saw diverse groups of immigrants pass through its doors. Miners and their families from Canada, the eastern U.S., the British Isles and Northern Europe made Louisville one of the most cosmopolitan towns in Boulder County. Of course, there were some agonizing communication problems, but the residents were mostly friendly and determined to make life work. By the turn of the century, ethnic areas of town were established, with little animosity, as this was simply more convenient and comfortable. Around this time, many Italian immigrants were arriving, and their influence is what Louisville is most often associated with in modern times.

Louisville until the 1950s was a town of miners, their families, and those who sold goods or services to them. The saloons were confined to Front Street – as many as 13 at one time – and on pay day the main avenue would be a busy, happy, hectic place. Single men would stay at the bars, while those married would fill half their lunch pail with beer and head home to their wife and kids. Other businesses in town in the early decades of 1900 included a drug store, barbershop, bowling alley, ice cream shop, pool hall, attorney, tailor, bakery and a newspaper.
Agriculture in Louisville was smaller in scale – because of the seasonality of mining work, budgets were often very tight and family garden plots were grown to maximum output. Gardens were a source of pride for the women, as well as a very necessary supply source for families. The railroad stop was used by some surrounding farmers to get their products to Denver or the processing facilities in Longmont.

ERIE

The story of Erie is much like Louisville and Lafayette – mining began as early as 1859 on a small scale and with the arrival of the Union Pacific Railroad in 1871, larger mining camps were set up. Richard Van Valkenburg moved her in 1873, and named the community after his hometown of Erie, Pennsylvania. A Post office opened in 1876, and a diversity of immigrant miners soon populated the town. By the early 1900s, the usual livery, blacksmith, saloon and grocery store was complimented by Kuner Engerson & Co.'s pickle factory.

The town moved to the sound of the mine whistles, with frequent strikes offsetting times of high production. Erie has always enjoyed its relative distance and independence from the rest of Boulder County. This rural, quiet, self-sufficient attitude

helped Erie persevere through the difficult Depression years and mining actually continued up through the 1970s.

BROOMFIELD

Broomfield began in the 1870s as a Pony Express and a Rail Stop. Philip Zang owned property along the rail line and the town, or at least the area, was known as Zang's Spur. As a boarding house and grocery opened near the depot, surrounding farmers used this local hub as a way to access transportation to Denver and Louisville markets. Later, railroad officials named the small cluster of businesses surrounding their stop "Broomfield," a reference to the field of broomcorn that grew near the railroad line.

Broomfield stayed a small center of trade, surrounded by larger farms for decades, with more growth occurring following World War II. An indication of the relative slow growth in Broomfield is that the town was not incorporated until 1961.

LYONS

Edward Lyons moved to Boulder in the spring of 1880 with a small group of men and immediately began looking for work, and somewhere to live. (He was in a boarding house, and apparently he was the only one with money and ambition.) Within a few weeks of roaming around the Boulder area, he found land along the St. Vrain that was for sale. He bought 160 acres from Hiram Sawyer and while looking over his new property; he found 40 acres of lime rock and 40 acres of red sandstone. He was struck by visions of a quarry providing superior sandstone for construction. He headed back east for the winter to retrieve his family and secure initial financing. In 1881 he platted the town of Lyons and built a school. Initially he hauled sandstone by horse and wagon to Longmont to the railroad. The high quality of his stone was recognized around the country; locally it can be seen in the construction of several University of Colorado buildings.

In 1882, a post office and hotel were built, and the town slowly grew as more quarry workers as well as other farming families moved into the area. The town incorporated in 1891, and by the turn of the century the typical businesses of successful small towns, including a blacksmith/mechanic; grocery store, livery and saloons were serving the populace. With the advent of concrete in the early 1900s, the sandstone quarry operations were scaled back, with many workers losing their jobs. Those that didn't find other work on nearby ranches moved on, and Lyons remained a somewhat "sleepy" town. Interestingly, in the late 1890s, Edward Lyons was beset by financial difficulties and lawsuits with business partners that left him broke and disillusioned. He moved to San Diego never to return to Colorado.

Appendices

Aspects of Farm Life 1900-1930

(This section will include volunteer research conducted regarding changes in work, recreation, technology, clothing style changes, foods, etc. Please call the Volunteer Program Specialist at 303-776-8688 if you want to research a topic(s) of your choice.)

Horsepower

What is a draft horse?

- The average draft horse stands over 16 hands high and weighs about 2,000 pounds (one ton!). In comparison, the average riding horse stands about 15-16 hands high and weighs 1000 pounds.

- Build: Broad chests, short, thick necks, short legs in relation to the rest of the body, large hoofs, extremely muscular.

- Character: Gentle, willing to obey, often good around children. This type of character is important for such a large animal controlled by long reins instead of by a rider in the saddle.

The most popular draft horse breeds:

- **Percheron**: The first draft breed to arrive in America (from France), c. 1839.
  - Fast gait makes them good for pulling heavy loads over a distance.
  - The Percheron withstands hot temperatures well.

- **Belgian**: First came to the U. S. from Belgium in 1866.
  - Post-WWI farmers liked this smaller draft horse because its size made it cheaper to keep.
  - Noted for its good disposition.

- **Clydesdale**: Brought to the U.S. from Scotland c. 1850.
  - By the end of the 19th century, this breed was popular on farms and cities.
  - As fast trotters with relatively long legs, they are not as useful for pulling heavy loads.

Some threats to the horse:

- Colic (or worse) caused by eating noxious weeds (see Pests appendix for more info).
- Worms ingested in pasture.
- Diseases, including tetanus/lockjaw, pneumonia, and parasitic illnesses.
- Ill-fitting bits or horseshoes.
- "Feathering" on the hoofs of Clydesdales and Shires can accumulate dirt and mud and can lead to infection if not kept clean.

Disappearance of horsepower:

- Important power source on the American farm until the 1930s.
- Replaced by the internal combustion engine in cities before 1930.
- Post WWII tractors spelled the seeming demise of the horse as a source of farm power, BUT draft horses are making a comeback on some 21st century farms.

Some quotations of interest:

- "Horse farmers generally grow a lot of hay, since that is their 'gasoline.' Horses can draw heavy equipment necessary to cut, bale, and gather up the hay, so they contribute to growing, harvesting, and collecting their own food, something a tractor never does." -- Patent, Dorothy Hinshaw. Draft Horses. NY: Holiday House, 1986. P. 68
- "Overhead hay-racks are unnatural and are liable to drop seeds into a horse's eye." -- Encyclopedia Britannica, v. XIII, 1910, p.725.

The Many Faces of Farming

Native Americans

Cheyenne and Arapahos

- By c. 1800 the Cheyenne and Arapahos had moved into this area from the Northeast Plains, settling between the Platte and Arkansas Rivers. The Fort Laramie Treaty of 1851 ceded this land to them, but during the 1850s Gold Rush whites squatted on some of this property, causing friction. In 1861, the two Native American groups were given reservation land on the north side of the Arkansas, thus "opening the Front Range for permanent white settlement." (Friedman, Paul D. Boulder Historic Context Project. Oct. 1989, p. 19) After the Sand Creek Massacre in 1864, the Cheyenne and Arapahos were sent to a reservation in Oklahoma in 1867.

- Originally these groups were farmers who grew corn and other crops in their villages. Their lifestyles changed when they became more nomadic and moved onto the Plains.

- They were generally allied with each other and were initially friendly with European settlers.

- Their enemies included the Ute, Crows, Pawnees, Comanche, Kiowa, and Apaches. The Ute, primarily mountain dwellers, remained enemies, especially with regard to conflicts with the Arapahos over hunting grounds.

Ute

- After about 1700 the Ute and Comanche probably moved into the Colorado Plains area. Eventually several agencies in western Colorado were assigned to these tribes, but the Native Americans rebelled and were then sent to a reservation in the southwest corner of Colorado.

Note: There were only isolated incidents between Native Americans and whites in Boulder Valley, although men from this area did participate in the Sand Creek Massacre. Shorty Lohr's oral history interview reveals that Arapaho Indians were still a presence on the streets of Denver in the early years of the 20th century.

Scandinavians

- Primarily Swedes in the Longmont area, although Danes also came to work on the railroads and to dig in the quarries near Lyons until the demand for the stone lessened. Many turned to farming or starting small businesses.

- The Swedish population continued for many years to celebrate Swedish traditions, such as Midsummer Night festivities held at the Ryssby Church.

African-Americans

- Began settling in the Nebraska Territory around 1857, lured by the promise of better economic conditions. Some were miners, but most worked in towns where African-American women were often employed as domestic help. Many men found employment with the railroads. After the Civil War many Buffalo Soldiers[7] settled in the area.

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[7] Term given to all black military units from 1866 to approximately 1951 (Wikipedia).

- By the late 1880s there were approximately 875 African-American cowboys working in the cattle industry.

- In 1911, O. T. Jackson established Dearfield, a colony in Weld County for African Americans. In 1917, the colony had a population of about 700, but it could not sustain itself during the Depression and fell apart.

- African-Americans experienced widespread discrimination and Colorado's embrace of the Ku Klux Klan stains the state's history, especially during the 1920s.

German Russians (sometimes referred to as Russian Germans)

- Discouraged by droughts and discriminatory practices on the part of the Russian government, these people emigrated from German colonies located around the Black Sea and the Volga River from about 1873 to just before WW I. Originally attracted to the prairies of Kansas, Nebraska and the Dakotas (lands that reminded them of home), they began to move into Colorado in the 1880s and into Longmont from about 1904-1914. Some came on their own, but sugar company agents actively recruited some.

- This group had a reputation for being extremely hard workers who knew a great deal about the cultivation of sugar beets. They generally had large families, all of whom worked in the fields, even very young children. Many of the children, therefore, did not receive much formal schooling, their parents believing that it was sufficient for them to be able to read The Scriptures.

- They also had a reputation for being extremely thrifty. Many eventually saved enough money to buy their own farms because their large families could collectively earn so much in a season.

- Their language and use of family members as laborers often separated them from the rest of the population and they experienced discrimination. Others viewed them as unable to be assimilated into the general population.

Note: Hope Williams Syke's novel Second Hoeing, 1935, tells the detailed story of a German Russian family that makes its living in the sugar beet fields around Fort Collins. The book is available from the Longmont Public Library.

Japanese

- The first generation of Japanese immigrants is also known as Issei. They arrived in Longmont primarily between 1915-1920. In 1924 Congress passed the Exclusion Act, prohibiting further immigration from Japan.

- They often began as field workers and ended up owning their own farms, although the Alien Land Laws passed in 1920 prohibited Asian immigrants from owning farmlands in many western states. This law was upheld until 1948.

- They were denied citizenship until 1952 and some Longmont families were interned in camps during WWII.

Hispanic Americans

- Because World War I slowed the rate of German Russians coming to work in Colorado's sugar beet fields, the sugar companies began to recruit Mexican laborers, especially in the 1920s. They used recruiting agents in southern Colorado, New Mexico, and along the Texas-Mexico border. The workers were often transported to northeast Colorado in cattle cars. In 1924 there were about 300 Mexicans working in Longmont for the Great Western Sugar Company. They worked both in the fields and at the factory.

- The laborer contracted with the farmer to work for so much per acre: in 1924 the average was $21-23/acre and thinning 1/4 acre/day was considered a good day. The season lasted from May-November. The farmer often provided bare-bones rent-free housing that sometimes consisted only of tents.

- The Hispanic workers often put their children to work in the fields.

- They suffered from discrimination.

Quote: "Both Mexicans and German Russians performed the heavy and disagreeable production tasks that the Anglos refused to do…shoveling beets, handling lime at the kilns, storing and shipping the finished product. Twelve-hour days and a seven-day workweek made their jobs ever more disagreeable. No time was allowed for lunch; workers had to eat while on duty." -- Markoff, Dana. "Beet Hand Laborers of Sugar City, Colorado 1900-1920," in Sidney Heitman's Germans from Russia in Colorado.

Pests

Insects

Codling Moth ("apple worm") (Introduced from Europe in the 18th century.)

- Affects apple, pear, crabapple, hawthorn and quince trees -- without preventive measures, 95% of an orchard's fruit can be damaged to the point of being unmarketable.

- Larva tunnels to center of apple, pushing its excrement ("frass") out through the entrance hole.

- Prevention can take various forms:
  - Birds and parasites that attack the eggs and larvae.
  - Keeping the ground cleared of windfalls.
  - Providing artificial scaffolds for larvae's cocoons and destroying the cocoons built there.
  - Application of insecticide.

Grasshopper/Locust

- Females lay eggs in ground in autumn. Eggs hatch when vegetation becomes green in the spring. Later development of wings greatly increases mobility.

- Their preferred food: young alfalfa and small grains, corn, garden crops. Known to eat the leaves of both deciduous and fruit trees, roses and, in extreme infestations, even the wool off sheep's backs!

- Prevention can take various forms:
  - Certain flies, beetles and wasps are natural enemies of the grasshopper.
  - Many birds will eat grasshoppers, including hawks, meadowlarks, magpies, robins, turkeys and chickens.
  - Grasshopper diseases (not very effective).
  - Insecticides: In the early 20th century, the most common insecticides would have been kerosene, kerosene emulsion and arsenic bran mash. Sold commercially or mixed by farmers according to personal formulas.
  - Machines, such as the locally-invented (in various forms) "Hopper Dozer," often a sheet-iron pan filled with a mix of coal oil and water, pulled across fields -- grasshoppers would jump in the 'dozer and drown in the liquid.
  - Cultivating ground to expose grasshopper eggs to weather and natural predators.

An account of the second wave (August) of the 1875 invasion of grasshoppers from the Central City Register: "As the sun reached the meridian today countless millions of

grasshoppers were seen in the air while the atmosphere for miles high was literally crammed with them. They sailed by under the presence of a light east wind in vast billowy clouds, the lower strata falling in a ceaseless shower on the ground, covering the streets, sidewalks, the exterior of buildings, jumping, crawling, crunched by every passing foot, filling the eyes and ears, and covering the garments of pedestrians, swarming everywhere in irrepressible currents…"

Other insect pests included: plant lice/aphids, potato beetles, etc.

Note: Advice to Plains settlers in 1908 regarding their constant battles against potato beetles and squash bugs: "…we advise you to use your ingenuity in killing them. I preferred to kill them with clubs." -- Colorado Agricultural Experiment Station Bulletin. #123, 1908, p. 5.

Weeds

Russian thistle (when woody and stiff, it is known as tumbleweed):

- Appeared in Colorado about 1892; the plant was introduced into the U.S. c. 1873-74 in flax seed imported from Russia and planted in South Dakota. By 1904, it was even growing in vacant lots in Denver.
- It can invade grain fields, pushing out valuable crops. It spreads rapidly and requires little water to thrive.
- Some farmers tried to use it as fodder, but most viewed it as a weed. In the early 20th century some used it as a livestock laxative or emergency feed.
- Herbicides help control its spread.

Salt cedar (tamarisk): Small trees or shrubs that colonize in riparian areas, pushing out native willows, cottonwoods, etc.

- First introduced into the U.S. from Southeast Asia about 100 years ago.
- Stems and leaves secrete salt that damages or kills other plants. Sends out huge root systems that can clog streambeds, causing flooding.
- Consumes lots of water: one large salt cedar uses 200 gallons of water/day.
- Very difficult to eradicate, although some herbicides work. Reintroduction of native plants also helps.

Weeds dangerous to livestock

Loco Weed (Astragalus mollissimus or Astragalus lamberti):

- Affects animal's nervous system, producing uncoordinated muscle and some paralysis and emaciation.
- In the early 20th century animals were treated with strychnine (cattle) and something called Fowler's solution (horses). Farmers were also urged to give laxatives to affected livestock.

Larkspur

- Considered poisonous until it blooms.
- Cattle that ingested larkspur during its poisonous stage would head for water but often died before reaching it, causing people to accuse their neighbors of poisoning wells because dead cattle were often discovered near wells.
- Antidotes of various sorts were recommended. In 1909, farmers were advised to dose the affected animals with melted lard (thought to slow the absorption of the poison). Certain "stimulants" were also suggested, including whiskey and ammonia!

Other plants poisonous to livestock

- Wild parsnip, death camass, wild cherry leaves, monkshood, sage, skunk cabbage, ergot, sorghum, kaffir corn, moldy hay/potatoes/carrots.

Irrigation/Ditches

Who owned the ditches?

- Farm groups
- Municipalities
- Businesses, including several located in England. Businesses often charged inflated royalties which several Colorado farmers and/or farming groups successfully disputed in the late 19th century.

Safety issues

- On average there was one ditch drowning per decade, most often involving a toddler.
- In 1929, ditch owners began to install safety grates.
- In 1951, Boulder called for fences or covers for all of its ditches so as to prevent children from wandering into them.

The "Ditch Rider"

- This was the person hired by ditch companies/agencies to open the head gates and adjust the flow of water for specific irrigation needs. Farmers had to request the service.
- "Midnight" ditch riders operated illegally, opening head gates themselves to irrigate their lands without authorization.

Reservoirs

- The first large "plains" reservoir was built at Terry Lake in 1890, filled from the Cache la Poudre.
- When McIntosh Lake was enlarged to 263 acres [1903?], it became a reservoir that supplied the Highland Ditch that was first decreed in 1871.

Anecdotes Taken from Oral History Interviews

About the Lohr/McIntosh House

"[We] loved to dress up in long dresses and stand at the top of the stairs and put on our plays and sing and dance. And the upstairs has walk-in closets -- big closets. This house is BIG. It was for us.

-----Shirley Vigil Trevino lived in this house in the 1950s, OH #001 A & B

"The thing that made things more difficult was we did not have a refrigerator. So we would use the cistern to make Jell-O. I can't believe that my Mom raised six kids here with just electricity and the coal stove.

-----Angela Vigil Apodaca, OH #001, A and B

Note: Angela and Shirley think the mixed Jell-O must have been placed in a bucket that was lowered into the cool cistern to set.

Grasshoppers

"…there were a few years in the late '30s, there was just an AWFUL lot of grasshoppers…they were just eating everything…They would be so thick that on the wooden posts, after the grasshoppers were gone…it's just like somebody had taken sandpaper and sandpapered the top of the posts."

-----Richard Behrmann, OH #010

"They ate the curtains in the living room."

-----Louise Behrmann Gebers, OH #010

[re Mary Grueb Zweck's house]"I can remember the tale about when electricity was put in this house…I'm gonna say about 1934. She didn't approve of that. It was worldly and

she would not touch the lights on or off. Until one night, Jean said, 'Well, I'm going to bed and you can leave them on but that we will run up a big bill if you do.' And she turned the lights off that night for the first time. And from then on she used the electricity."

-----Gayle Zweck, OH #019

On the Farm and in the Barn/Silo

"When we'd get done shocking grain, we'd play cowboys and Indians out there. And after we threshed, why there was always a big straw pile and us kids would have fun sliding down the straw pile on a piece of cardboard."

"Every milking session…there was a radio that was tuned to KOA or some news station, but they used to play a commercial on there…Pabst Blue Ribbon. And there was one cow…she wouldn't come in the barn until that commercial played. Then she'd come in and take her place to be milked."

-----Andrew Ernst, OH #014

"[Playing a radio for the cows] calms them down. A sudden noise that would happen, it covers that noise. But also they like to listen to someone like the Tincup broadcast of those days and it was entertainment for them to listen to the newscast or whatever it was."

-----Dr. John W. Harrison ("Dr. Bill"), veterinarian, OH #022

"Every once in a while when the water would get shut off or some reason we'd spoil the milk, why Shorty would always give it to my mother. And my mother would boil it and make cottage cheese out of it. So we always had cottage cheese here, and we always hoped for the milk to be spoiled so we'd get cottage cheese.

-----Andrew Ernst, OH #014

"A lot of these stanchions were worn very smooth so the grain of the wood was very beautiful…because the oil of the hair…and the rubbing on there…the wood was beautiful from the cows rubbing against it."

-----Dr. John W. Harrison, OH #022

"That's an oiler. For cattle…they would rub up against it and work the oil down and oil the cows…[to] keep 'em clean and curried, and keep the flies off…It would be oil with fly repellent in it…the cows would get to workin' on them and boy, they would get shiny and pretty, you know. Gives a good healthy coat of fur on 'em, hair."

------Vernon French, OH #015

"Your corn was green when it went in [the silo] and when you got in there, it would be wet. You had to watch out for that gas that can form up there…You had to be real careful. The hay was heavier than the air and the silo would be clear full…you didn't dare jump off in there 'cause it could be filled with gas, you know. So you take off those doors down to the edge of the silo and then get some circulation in there."

-----Vernon French, OH #015

Family and Site Photographs

Minnie and George McIntosh, Jr., ca. 1890

The McIntosh Family, circa 1895 (from left to right) Minnie, Walter, May McCoy, Mark McIntosh, George, Jr., George, Sr., and Amanda (Hanging in the Parlor of the farmhouse)

George & Minnie Lohr wedding portrait, ca. 1899
(Hanging in the Dining Room of the farm house)

Minnie McIntosh Lohr & baby Neil, 1900 (Hanging in the dining room of the farm house)

George McLelland Lohr, Hygiene Postmaster, ca. 1900

George & Amanda McIntosh (& unidentified)
at 714 Kimbark St. in Longmont, ca. 1910
(is this Shorty's bike?)

The Lohr Family: George, Neil, Harry, and Minnie, ca. 1917
(Found in the Parlor of the farmhouse)

1951 Assessor's Photo of the Lohr Farmhouse front yard

(Note the lightning rod on the roof, the screened front porch, and chicken scratching at center left.)

Photo courtesy of Boulder Public Library's Carnegie Branch Library for Local History

1951 Assessor's Photo of the Lohr Farmhouse back yard

(Note the privy at far left, the smokehouse-turned-shed (?) at left, the board fastening same to the garage, the loafing/calving (?) sheds behind the white granary, and the free roaming chickens scratching in the yard.)

Photo courtesy of the Boulder Public Library's Carnegie Branch Library for Local History

1951 Assessor's Photo of McIntosh Barn

(Note the corral fencing at left and the enclosed east wall with large roadside wagon doors, and the absence of the loafing shed to the west.)

Photo courtesy of Boulder Public Library's Carnegie Branch Library for Local History

1951 Assessor's Photo of the Lohr's Chicken Coop (?) and Pig Pen (?)

(Note what appears to be a pigpen and shelter at left and a chicken coop at right, just east of the McIntosh Barn, with hay wagon at rear.)

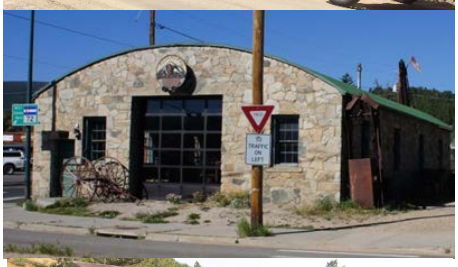
Photo courtesy of the Boulder Public Library's Carnegie Branch Library for Local History

1951 Assessor's Photo of the Lohr's Studs-out Granary (unknown location)

(Note the orientation of the hay wagon and utility pole versus the wagon's location in the previous photo. If the straight pole to the right is the still existing light pole and if the slight depression at the far right is the ditch running through the yard, then the white structure on the right could be the milk house. If the shed extensions in the center are brooding boxes, then the shed extension could be a chicken coop.)

Photo courtesy of Boulder Public Library's Carnegie Branch Library for Local History

For more information about the Agricultural Heritage Center, Lohr/McIntosh family stories, leading tours and programs, oral history interview videos and transcripts, and any other history topics, please visit the volunteer resource library on the second floor of the Lohr Farmhouse at the Agricultural Heritage Center.



Introduction to Volunteering with Cultural History

Boulder County Parks & Open Space

Introduction to Volunteering with Cultural History

Welcome to the Cultural History Volunteer Program

About Boulder County Parks & Open Space

Cultural History Sites and Volunteer Opportunities

Introduction to Volunteering

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Visitor Contacts

Emergency Procedures for Volunteers

Boulder County Volunteer Policy

Leading Programs

WELCOME

Welcome to the cultural history volunteer corps for Boulder County Parks & Open Space (BCPOS)! Whether you are volunteering for the first time or one of our many experienced volunteers returning for a new season, we hope that you will find this handbook to be a helpful guide and source of answers to your questions.

The success of Boulder County's volunteer program is a result of the hard work and dedication of volunteers. We rely on the skills, talents, and abilities of many individuals to assist open space staff in providing a quality visitor experience while preserving and protecting the properties' natural and cultural resources.

There are many ways volunteers help Parks & Open Space. Our volunteers are rewarded in turn by getting to know the resources in a meaningful way, meeting people from different walks of life, and assisting BCPOS employees in making every visitor's experience a positive and memorable one. This handbook is dedicated to all of the volunteers, past and present, who have helped to make Boulder County Parks & Open Space the valuable asset it is today.

Contacts:

_____ My Volunteer Coordinator

_____ Cultural History Coordinator

About Boulder County Parks & Open Space…

Brief History/Overview

Boulder County's Parks & Open Space (BCPOS) program was initiated in the mid-1960s by citizens interested in preserving land from rapid development. At that time, there were fewer than 130,000 people living in Boulder County. Now, there are 300,000. In 1975, Ernie Betasso's 773-acre ranch, six miles west of Boulder, became the department's first major open space acquisition. Today, BCPOS owns or oversees more than 100,000 acres of open space.

Mission Statement of Boulder County Parks & Open Space

The mission of Boulder County Parks & Open Space is to conserve natural, cultural and agricultural resources and provide public uses that reflect sound resource management and community values.

BCPOS Goals:

1. To preserve rural lands and buffers.
2. To preserve and restore natural resources for the benefit of the environment and the public.
3. To provide public outreach, partnerships and volunteer opportunities to increase awareness and appreciation of Boulder County's open space.
4. To protect, restore and interpret cultural resources for the education and enjoyment of current and future generations.
5. To provide quality recreational experiences while protecting open space resources.
6. To promote and provide for sustainable agriculture in Boulder County for the natural, cultural, and economic values it provides.
7. To develop human resources potential, employ sustainable and sound business practices, and pursue technological advancements.

Boulder County Parks & Open Space's Acquisition Techniques

Here are some of the most common ways we acquire and preserve open space:

- Full ownership by direct purchase - the most common method allows the County to obtain full ownership of land for open space by direct purchase.
- Conservation Easements - the County acquires the deed of conservation but does not own the property.
- For more information about BCPOS acquisition, please visit:
    - https://www.bouldercounty.org/open-space/management/acquisitions/

Boulder County Parks & Open Space Funding Sources

Funding for open-space acquisition comes from property taxes, voter approved sales tax resolutions, and state lottery funds. For more detailed information about BCPOS funding, please visit: https://www.bouldercounty.org/open-space/management/funding-sources/

Boulder County Parks & Open Space Advisory Board (POSAC)

POSAC governs BCPOS properties, which makes recommendations concerning acquisition and use to the County Commissioners. POSAC meets the fourth Thursday evening of every month.

Meet the Staff at the Agricultural Heritage Center

Sheryl Kippen

I'm a Colorado native; I grew up in Golden and moved to Greeley to attend UNC. I've always enjoyed history—reading historical fiction and mysteries, watching documentaries and pouring over old photographs—so I earned my undergraduate and MA degrees in history. That led me to museums. From 1995-2010, I worked in various positions at the City of Greeley Museums, from seasonal tour guide to museum educator to Education Curator. As of December of 2010, I'm excited to have Boulder County Parks & Open Space as my workplace. There's fun, constant learning, and variety in being the Cultural History Program Coordinator; I get to work with amazing and talented colleagues and volunteers as we share the history of the area's past in farming, ranching, mining and more.

My husband Scott and I have been married since 1995; we met in high school and just happened to go to the same college. We enjoy Euro or German board gaming as well as reading, movies, walking, and working out at the gym. If we could, we'd love to travel all the time to see exciting places the world over. I'm an avid collector of t-shirts—especially Hard Rock Café, Planet Hollywood, Margaritaville, and Disney. A Disney theme park addict, I've visited them more than 9 times. I love behind the scenes zoo and theme park tours; I've fed and petted a rhino, tromped through The Ulitildor, and stood behind animatronics during a park ride.

Jim Drew

I was born and raised in Tomah, Wisconsin, a rural community in central-western Wisconsin. I graduated from Drake University in Des Moines, Iowa with a degree in cultural anthropology and sociology and a minor in business studies. I later received a professional certificate in Museology (Museum & Field Studies) from CU. I have been with Boulder County Parks & Open Space since 2004. I worked seasonally before going full time in 2007. My main focus is the Agricultural Heritage Center, where we share history with families and schools. In between my first and second seasons with BCPOS, I spent five months living in China and teaching English to university students. I met my wife Lauren while studying abroad with the Semester at Sea program, so we met somewhere in the Coral Sea between Japan and Australia. We share a deep love of travel and experiencing how other people in the world live, work, and play. We live in Longmont, where we have two sons, two cats, and a naughty dog. I like to homebrew beer when I'm not trying new sports and playing with my boys.

Cultural History Sites and Volunteer Opportunities

BCPOS has four regularly open historic sites that can also be considered museums. Cultural History (CH) is part of the Education and Outreach group in the Resource Management area of the county's Parks & Open Space Department.

Agricultural Heritage Center AHC (also called Lohr)

8348 Ute Hwy 66, Longmont
Open seasonally, April-October on Fridays, Saturdays, Sundays from 10 a.m.-5 p.m. and the first Saturday of the month, November-March

This is an open-air farmstead museum. Get a glimpse into the history of agriculture in Boulder County and enjoy the rural surroundings. This site focuses on the years 1900 to 1925 when local families prospered as farmers and witnessed the coming of the Modern Age. Several programs and events take place for the public each season. Volunteers assist with these doing historical demonstrations, sharing stories, and leading activities.
A variety of volunteer groups help keep this site running:

- Tour Guides give tours to walk in visitors and groups from schools, senior centers, and other places.
- Garden Gurus assist with all stages of planning, planting, working, and harvesting the kitchen garden behind the farmhouse.
- Critter Caretakers visit the site mornings and evenings between April and November when visiting (borrowed) farm animals are on site. These volunteers feed and water the animals. Some volunteers also groom them and are on "poop patrol" to clean their pens

Altona School AS

834 Lefthand Canyon Drive

This site that opened in spring of 2019 on the Heil Valley Ranch II property. This is the oldest sandstone schoolhouse in the state. It was a school from the 1880s-1940s.
The school is used for requested summer school and camp field trips and possibly for summertime public events. Teachers can choose from three one hour experiences: Pioneer One Room School or World War II One Room School or Mining. Because the school can only hold about 25 people, and fewer during times of COVID-19 concern, a nature hike with led by the teacher or parent leaders using a guide developed by local high school students make it so that two classes can be accommodated.

- Altona Educator Volunteers assist with field trips and other programs at this site.

Assay Office Museum AOM (also called Wallstreet Assay Office or James F. Bailey Assay Office Museum)

6352 Fourmile Canyon Dr., Boulder (the old town of Wallstreet)
Open seasonally, May-October on the third Saturday of the month, 11a.m.-3p.m.

This is a house museum with two rooms open to the public. At the turn of the twentieth century, hard rock mining in Boulder County was in full swing, and the area known as Wall Street played a prominent role in this chapter of our community's history. The assay office was the place where prospectors would take their ore samples to find out whether or not they had potentially "struck it rich." So important was the determination of the assayer that the results of their work could, and often did, make or break a prospector.

- Museum Guide Volunteers at this museum staff it on open house days. They greet visitors and share the property and Bailey family history. Guides prepare the house for opening by tidying it and its restroom as well as weeding and light yardwork outdoors. Occasionally we have requests for group tours outside of open house days. Those volunteers are called upon for these tours as well.

Cardinal Mill CM
Near Nederland, closed to the public; visitors must be escorted by staff and in marked Boulder County vehicles

A mill used to process ore from the Boulder County Tunnel and other nearby mines starting in 1903. As with other mining mills and mines themselves, as certain elements and techniques went boom and bust, the mill would be adapted to process other minerals. Cardinal Mill processed gold, silver, tungsten, and lead. It was a running mill until the 1940s.

Visits are part of mid-August-October Hard Rock Mining Tours and Open Houses where vans transport registrants from NMM to the mill for pre-scheduled programs. Because the chemicals used in milling were toxic and areas of the mill remain very fragile and dangerous, just the upper and lower areas of the mill and the mouth of the Boulder County Tunnel are open for visitors. The exterior of the mill has been restored, but not most of the interior. Bats find the mill to be a great nesting area, so no visitors are allowed each year after August 15.

Nederland Mining Museum NMM
200 N. Bridge St., Nederland
open seasonally, June-October on Fridays, Saturdays, Sundays, 11 a.m. – 5 p.m.

This is a mostly indoor gallery-style museum along the traffic circle in Nederland. See the various "tools of the trade" of mining and get a close-up look at the lives of the miners. Miners wore helmets equipped with lights to see in the mines; how did those change over the years? See how drills to do the mining changed as technology did. Ring a signal bell like the miners did to tell the hoist operator to bring them up and out of the mine. Dynamite was used to blast the precious metal-containing rock into smaller bits and out of the mountainsides and mines. How was dynamite stored and in what amounts could miners buy it? Learn about what was mined in Boulder County with the mineral display. See indoor and outdoor displays of trams, ore carts, engines, historic photographs and rare mining claim maps.

- Museum Guide Volunteers provide hospitality for this museum and share the area's history and mining artifacts with visitors. On Gold Panning days, volunteers assist with this program. Spring and fall brings school field trips to this site where volunteers also sharing mining artifacts, miners' lifestyles, and history with students in active ways.

Walker Ranch Homestead WR
7001 Flagstaff Rd. (7 miles west on Flagstaff Rd.), Boulder
Site is open for pre-booked spring and fall school field trips and for Heritage Day events several times a year

This is an open-air homestead museum in the mountains. Settler James Walker, from Missouri, moved to Boulder in 1869. He and his wife Phoebe filed a homestead claim for 160 acres in 1882. The next year,

he moved his wife and young son into the newly built ranch house. Over the next 80 years, the Walker family came to own over 6,000 acres. When the property was sold in 1959, it was one of the largest cattle ranches in this region of Colorado. The homestead consists of original buildings from the 1880s, except a newly reconstructed ranch house. The original ranch house burned to the ground in 1992 and has since been rebuilt using environmentally friendly techniques while remaining faithful to 1880s architecture, design, and materials

- Living History Volunteers don period costume and demonstrate chores, games, and crafts of the 1880s-1900 timeframe.

Introduction to Volunteering

The staff of BCPOS consists of two parts: paid and volunteer. Volunteers are crucial for assisting BCPOS in providing valuable services to the community. We recognize and highly value this contribution and hope to offer you:

1) An opportunity to contribute talents and skills through active participation in educational programs and events or through research/planning.

2) An exciting educational resource for further study in historical areas.

3) An opportunity to grow personally and professionally.

BCPOS will implement these opportunities for the volunteer staff through:

1) Available staff who will help them prepare for service, increase their knowledge, and provide guidance and support.

2) Written materials such as this orientation handbook, volunteer staff job descriptions, access to the research library materials, and a periodic *Cultural History Corner* newsletter.

3) Orientation meetings and individual site trainings.

The volunteer program at BCPOS should provide a mutually beneficial experience for the volunteers and staff.

Cultural History Volunteer Guidelines

Cultural History Volunteers are an important component of the Resource Management staff. Your responsibility as a Cultural History Volunteer is to be prepared, informed, and concerned with sharing history of these sites with park visitors. While preparing for your shift and while volunteering, please regard the following guidelines:

Research/Meeting/Work Spaces

- Cultural History has two volunteer rooms. The BCPOS Cultural History volunteer room is upstairs in the Lohr Farmhouse at 8348 Ute Highway 66 in Longmont. A resource library, workspace, meeting space, water, microwave, and a small refrigerator are at your disposal. The same is true of the upstairs office area at the Nederland Mining Museum. Similar appliances, a smaller library, and facilities are available for volunteer use.
- The AHC Volunteer Coordinator's office is located in the volunteer room at the AHC and the Nederland Mining Museum Coordinator office upstairs at that site. Your comments, concerns, suggestions and recommendations are always welcome.

Dress and Personal Appearance

Because you are in contact with the public, dress and uniform are very important. Consistency in uniforms will allow the public to identify you as a BCPOS volunteer. All volunteers are asked to be neat in appearance. Shirts or baseball caps and nametags are provided for volunteers at all sites except WR upon completion of training and staffing a few shifts. Walker Ranch Volunteers have different attire to wear which will be covered later in this section. So that you are identified as a BCPOS volunteer and should not be questioned about your presence on our properties, we encourage you to wear your shirt or cap and your nametag. If you choose to wear a hat of another type, please take care to wear nondescript headwear.

At work, there are things you should wear and things that are not appropriate. When people see you working at the museums, how you dress tells them about you, about the kind of work you do, and also about BCPOS as an organization and business. Remember to be comfortable and casual and looking neat (unless you are helping with cleaning or animal care) at all times.

Dress for changing Colorado weather! Have extra layers of clothing handy since much of museum work is outdoors. Wear appropriate shoes: closed-toe, sturdy shoes with treads can be helpful for walking, especially over uneven ground off- trail or in corrals.

If you clean in old buildings, BCPOS staff should have face masks and rubber gloves ready for everyone to use. Please ask if they aren't offered to you. Always sweep dust away from you and other people. A solution of water and bleach should also be available to spray down floors of buildings before and after sweeping. This sanitizes and also wets the dust.

If you volunteer at WR, an old fashioned costume is required. BCPOS has a costume closet for you to borrow a costume from at the AHC in Longmont.

If the day is cold…often there will be strong winds at WR! Be ready for these by wearing layers under your costume. That might mean checking out a costume that is a size or so larger than you normally wear so that you can fit long underwear, leggings or even jeans and a sweatshirt underneath.

Illness or absence

In case of an illness, vacation, or other absence that will affect your scheduled volunteer obligations, please call email, or text your volunteer coordinator as a replacement may need to be found immediately.

Keep in mind that some of our locations and their driving routes are not reachable by cell phone, so staff may try to call you or not hear your call until long after the event that you needed to miss.

There are landline phones at the AOM, WR, NMM (phones at these sites have no answering machines) and AHC:

AOM 303-443-0865
WR 303-546-0689
NMM 303-258-7332
AHC 303-776-8688 Jim/303-776-8848 Sheryl

Bad Weather

In general, we need your help to run programs and events rain or shine. We will get in touch with you, or you with us, if you feel it is unsafe to travel to your volunteer shift.

Keeping Track of Your Hours

We use a web-based online program called Discover to track volunteer assignments and hours. When you sign up for an Activity or Shift, hours are automatically recorded, however you have the ability to add or subtract hours to accurately record your time. Be sure to record or let staff know about extra research or other prep time you put in so that it is all counted. For special projects, ask your volunteer coordinator for help in tracking hours. Tracking these donated hours is very important for year-end reporting, grant writing, and other tracking purposes.

Lost and Found

A lost and found box will be kept in both volunteer rooms. Any valuable items (cameras, glasses, etc.) that are found on site should be immediately placed there or given to a volunteer coordinator. Notify the Nederland Mining Museum Coordinator of lost and found items at the Assay Office Museum. Discuss who will transport these to either the Nederland Mining Museum or Agricultural Heritage Center. Lost and found items at Walker Ranch will make their way to the Agricultural Heritage Center.

Smoking, Parking, Pets, and Damage

- No smoking is permitted on-site at our museums.
- All staff (paid & volunteer) should park in the main parking lot at the AHC. On special event days, volunteers should part at the west end of the site. We encourage volunteers at the Nederland Mining Museum to park at the Park 'n' Ride and to walk to the museum.
- Volunteers can park on the side of the museum or in the lot at the Assay Office Museum. Carpooling or walking, for those volunteers living in the neighborhood, is encouraged since parking is limited.
- Walker Ranch volunteers may park to unload supplies in front of the White House, Granary, Log House, or Blacksmith Shop. Vehicles must then be driven to the public parking lot for the duration of the event or field trip.

- Pets are not allowed at any BCPOS historic sites. The exception to this rule is for Service Animals. Service animal owners must volunteer the information, but we do not ask for confirmation.
- If an artifact at any site is broken, damaged or appears to be missing, please inform the AHC Volunteer Program Specialist and/or your volunteer coordinator. Please do not attempt to repair artifacts or do maintenance on buildings yourself.

Cash Handling

There may be times that you will accept monetary donations or sell books (AOM, AHC) on the behalf of BCPOS. Here are the procedures in these cases:

For money donations beyond just pocket change or book sales

Record cash, name of book sold, and/or checks in a receipt book (3-part, numbered; provided):

- 1 receipt stays in the receipt book
- 1 receipt is given to purchaser/donor for their tax/record purposes (Please state what the payment was for; i.e., donation, sale of Pioneer Voices, etc.)
- 1 receipt accompanies the money (cash in) cash, or check; checks should be turned in as soon as possible
- Receipt of a check should be noted with a receipt

Turning In Funds

Unless otherwise instructed, place donated/sales monies in an envelope. Give that envelope to your Volunteer Coordinator or leave it in a safe, agreed upon place on site for the coordinator to pick up and deposit.

Checks must be payable to BOULDER COUNTY.

Volunteers should not be transporting cash after a museum open house day or event. That is great responsibility that volunteers need not take.

Funds are deposited into the Donation Account.

Email updates

Information and program updates will be e-mailed to the Cultural History Volunteer group monthly in a newsletter. These will inform you about Resource Management issues, current projects, volunteer needs, and other pertinent information related Cultural History activities and events. We provide separate e-mail notices regarding special events and special opportunities.

Learning Opportunities

Learning Opportunity sessions, field trips, and socials are offered by BCPOS to volunteers.
Many of these are great ways to learn more about various cultural history related topics, meet other vounteers, and to brush up on your skills. Notice of upcoming trainings and procedures for registering will be included in newsletters and emails.

Volunteer Application

All adult volunteers must sign up for an account in Discover, complete a volunteer application and liability waiver prior to participating in a program or training. Volunteers must also take part in a new volunteer interview with their volunteer coordinator to match them best with the program. Adult applicants must complete a criminal background check to be eligible to volunteer.

Mileage

Volunteers may receive a federal income tax write-off for the mileage incurred in their personal vehicle during their volunteer duties. This benefit is optional and is recorded solely by the volunteer. Check with the IRS (http://www.irs.gov) for current mileage rates awarded.

Insurance

Liability claims: The County's Liability Coverage may be extended to volunteers for volunteer responsibilities. Volunteers may be covered for claims made against them individually or as protect and defend them if sued for an action while doing business within the scope of their part of a joint claim.

Auto Liability Claims: If a volunteer uses his/her personal car while conducting county business and has an accident which causes damage to the other car or physical injury to its passengers, primary coverage will be from his/her personal automobile insurance policy. If claims exceed the policy limits, the County's Auto Liability Coverage may provide additional coverage.

Accident Injury: Accident Insurance Protection that is an excess program to their own private health insurance is purchased for volunteers. If injured while volunteering, this protection gives the volunteer additional coverage up to $25,000 of medical payments and accidental death and dismemberment coverage. If the volunteer has no health insurance, this optional accident insurance becomes primary.

Program Evaluation and Volunteer Discipline Guidelines

An important and valued segment of the Boulder County workforce is the large number of volunteers who willingly give of their time on a regular basis, working without any remuneration beyond the personal satisfaction derived from their service. They are governed by the volunteer guidelines established by Boulder County, and their volunteer programs. It is the policy of Boulder County that skills developed as a volunteer be viewed as important job skills.

Evaluations

We may monitor and evaluate volunteer work performance, and a volunteer has the right to give and receive constructive feedback on work performance. Performance appraisals for volunteers are ongoing, non-threatening, participatory and empowering.

Performance evaluations are encouraged at the conclusion of the assigned project on at least an annual basis, or when requested by us or the volunteer. The evaluation discussion focuses on accomplishments as measured against established goals.

Volunteer Performance

We will discuss with the volunteer any need for changes in performance, seeking suggestions from the volunteer on means of enhancing the volunteer's relationship with us, and gauging the continued interest of the volunteer in serving in that position. In appropriate situations, more training might be required, re-assignment to another position or release from volunteer service.

Recognition

Recognition is an important component of the County's commitment to citizen participation in its work. Volunteers will be recognized for their efforts, the fulfillment of their commitment and the quality of their work.

Separation from Volunteer Service

Most volunteer positions are for a defined time period and volunteers are asked to honor that time commitment. However, volunteers may resign at any time for any reason. There is no mandatory retirement age for volunteers. Volunteers who fail to satisfactorily perform their assignments are subject to suspension or release. Prior to release of a volunteer, the volunteer will be given an opportunity for discussion with the coordinator.

Discipline

All disciplinary actions shall be based on cause. Examples of actions by volunteers which may be considered cause include, but are not limited to, the following:

- Any violation of a Boulder County policy.
- Any behavior that adversely impacts the efficiency or effectiveness of Boulder County functions.
- Incompetence or inefficiency in performance of job duties.
- Deliberate or careless conduct endangering the safety or well-being of fellow volunteers, employees or the public.
- Negligent or willful damage or waste of Boulder County property.
- Unauthorized use of Boulder County property.
- Insubordination or refusal to comply with lawful orders or regulations.
- Deliberate abusive language or unbecoming conduct toward the public or fellow volunteers.
- Being under the influence of intoxicants or non-prescribed drugs so as to affect the performance of duties.
- Conviction or admission of a serious crime such as a felony or crime of moral turpitude.
- Accepting bribes in volunteer work or deliberate misuse of County funds.

Any condition, event or change in status that renders a volunteer ineligible for his or her obligations pursuant to federal, state or local laws, rules or regulations.

Representing the County

Public Contacts

Part of your commitment is to represent the County appropriately to the public. The contacts you make with museum visitors are very important, as you may be the only contact they ever have with a member of our organization.

Even though BCPOS has volunteers and employees at all different levels, the average visitor will often judge the entire Open Space system based on the action of a single volunteer or employee. If this person

is rude or insensitive, it can take considerable kindness and thoughtfulness by other Open Space personnel to overcome this one bad impression. A bad experience may never be erased from the memory of some visitors.

Sometimes visitors like to engage us in discussion about politics, the agency we work for or volunteer with, or other government agencies. You may wonder, "What should I say? How should I respond?"

Visitors often feel very comfortable in a program or museum setting chatting with staff and volunteers (which is good!). The main thing to remember is that as volunteers and staff members, we are official representatives of Boulder County. This means that at all times, it is important to remain neutral in our discussions when engaging with the public.

Our audiences vary in their background, experiences, and opinions, so you never know if someone may find what you say offensive. If we remain neutral in discussions, our listeners are far more willing to take in the messages we share and form their own opinions that support our goals of caring for and protecting open space.

Boulder County Parks & Open Space also collaborates with many other agencies and organizations in our community. We respect the work that these groups do as well, often partnering with them, while working towards some of the same overall goals even when their institutional goals differ slightly from ours. As staff and volunteers, we can always share why we do what we do, why we love it, and why it's important to us—these are great incentives for other people and set wonderful examples for others.

The best light we can shine on what we do is a positive one!

VISITOR CONTACTS – You Represent the County

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Your Role as a Cultural History Volunteer

Though duties and responsibilities are varied, visitors may approach you intentionally, or they may casually recognize your vehicle or uniform markings. The most common questions will likely be:

"What are you doing?"
"Why are you doing that?"
"How can I do that?"
"Can I go back there, too?

Even if visitors are rude, remain courteous and helpful to everyone at all times. The public generally appreciates receiving information about the site where you are volunteering.

Remember to articulate how BCPOS balances the visitors' needs with protecting the resources. If a visitor asks a question that you cannot answer then give them your Volunteer Coordinator's card, follow up with your volunteer coordinator, and let them know someone in Open Space will get an answer for them.

In a nutshell:

- Be receptive to what the visitor wants to talk about, whatever it may regard.
- Be friendly, but brief.

- Be informative.
- Be discreet.
- If you don't know an answer, say so.

Of course, always lead by example in following the rules and regulations. Stay positive, and have fun out there!

Visitor Contacts in Difficult Situations

Expect the Unexpected!
With thousands of visitors a year, there is a possibility that you will have to handle some difficult situations while on duty as a Cultural History volunteer.

In all of these situations, the first thing you should ask yourself is, "Am I safe?" If the answer is "No" or "I don't know," then your contact is over. Leave the area immediately and call Boulder County Sherriff Dispatch (303-441-4444). If the answer is "yes," then the next thing you should ask yourself is "Am I calm?" If you are upset by this contact and are not able to remain calm and in control while talking to the visitor, then you need to end the contact.

Violations

You might witness a few rule violations when volunteering. BCPOS would like to see visitors comply with park regulations by educating them about the reason for the regulation. The vast majority of violations that you observe will be dogs on historic sites and trespassing after hours. Dispatch (rangers or other law enforcement) should be contacted if you see serious park violations (e.g. that are hazardous or destructive to other visitors, facilities, wildlife, or natural resources).

Example Situation –

- A family enters the parking lot either because we accidently left the gate open (which we shouldn't do when we're closed) or they simply opened the gates and let themselves in.
- Action: Assuming there are no immediate safety concerns, we need to ask them to leave.
- Conversation:
    - You: Hi there, how can I help you folks?
    - Family: Hi, we're just going for a walk around the lake.
        - Or, "we just want to check out the farm."
        - Or, they don't think they need your "help."
    - You: Well, I'm sorry, we're closed today.
    - Family: Well, I just want to get to the lake.
        - Or, Oh ok, our mistake. How do we get to the Lake Trail?
        - Or, Can't you just give us a little tour of this place?
    - You: I'm sorry. We are open every Friday, Saturday, and Sunday from 10 a.m. – 5 p.m. and you can access the trail from here during those times.
        - Or, say the above and add, "If you turn right out of the parking lot and take your first right turn, that's Airport Road, you can park on the side of the road to access the Lake Trail. Or you can keep going and you'll run into a nice city park called Flander's Park.

    - Or, I'm sorry, we just don't have time to do tours today.
- Most violations stem from a misunderstanding of the rules. It helps to assume the best of intentions and use this as an opportunity to educate people in violation of the rules and most people are receptive to help.
- If you ever feel threatened or that the person won't leave, for example, please let them know that you will be calling dispatch immediately.

Emergency Procedures for Volunteers

The following information is **important**. Please become familiar with these procedures.

Emergency Situations

There is always a possibility that you might encounter an emergency of some type while on duty. Whether your emergency skills include handing a visitor a bandage or you are an advanced first aid responder, try to handle the situation in a calm and effective manner. In this manual are some tips for keeping yourself safe while assisting in the emergency to the best of your ability. First aid kits are always a good first step if any injury occurs. When supplies are used, please report them immediately to your volunteer coordinator to be restocked. Fire extinguishers are available at each site, typically near doors.

BCPOS offers First Aid and CPR training once or twice a year for volunteers, please consider becoming certified.

First aid kits at each site:

Agricultural Heritage Center:

- Farmhouse restroom
- Garage wall
- Blacksmith Shop
- Feed and Tack Shed wall near door

Nederland Mining Museum:

- Under the bar, on the left hand side

Assay Office Museum:

- Closet next to restroom

Walker Ranch Homestead:

- Granary: front room, back wall
- Blacksmith Shop
- Wagon Barn

Altona School:

- In white metal case on wooden coat rack

In the event on an emergency:

1. Make quick and detailed observations of the setting, your location, the nature of the incident and the state of the subject
2. Remain with the subject, stabilize them, and prevent further injury if possible.
3. Writing down pertinent information prior to relaying it to a dispatcher is very helpful. Getting their name, their age, existing medical issues is useful information.
4. Use common sense and administer first aid only within the scope of your training. Remember if the person is conscious, you must obtain their consent, before providing treatment. If a rescue vehicle is needed, get to a phone as quickly as possible. CALL 911. Near landline phones at each site is information on the site's street address and telephone number
5. Determine if a gate to the area needs to be opened to provide access to the area.
6. While waiting for the rescue vehicle to arrive:
    a. Make the victim as comfortable as possible, DO NOT move the victim.
    b. If possible, do not leave the victim alone.
    c. Locate another BCPOS staff member for assistance. If another staff member is not in the immediate area, ask a visitor for help.
    d. Try to determine if the victim is accompanied by family or friends who might know vital medical information.
7. Fill out an accident report form, which can be obtained from the Cultural History Program Coordinator. Our insurance company requires that a completed accident report be turned in within 24 hours.

Report the incident to your volunteer coordinator and/or Cultural History Program Coordinator as soon as possible.

INCIDENT

EMERGENCY

-Serious injury or illness

-Weapons violation

-People in danger

-Fire

-Car crash

-Vehicle break-in; in

PROVIDE FOR YOUR SAFETY

CALL 911

-Location (what park)

-What's happening (briefly)

Listen carefully to the dispatcher, they will ask you what they need to know next. They might give you

NON-EMERGENCY, BUT URGENT

-Vehicle break-in (not in progress or COLD)

NON-EMERGENCY

-Unattended pet

PROVIDE FOR YOUR SAFETY

CALL 303-441-4444 only if you need a response from a Ranger or Deputy.

Get as much information as you can.

A GOOD OBSERVER KNOWS…

1. ***Where*** are you? Be as specific as you can.
2. ***What*** happened? Be brief at first.
3. ***When*** did it happen?
4. ***Who*** is the victim or suspect? This is when you need a detailed description. "Who" might also include a vehicle description of a suspect.

Fire Emergency

1) Stay calm. DO NOT PANIC.
2) Evacuate staff and visitors from the area as quickly and calmly as possible. Be aware of evacuation procedures on your site.
3) Report the fire by calling 911:
    a. Identify yourself.
    b. Identify the site and exact location of the fire.

4) Locate other BCPOS staff members for assistance. If another staff member is not in the immediate area, ask a visitor to help you locate one.
5) Determine if a gate to the area needs to be opened to provide access to the area.
6) Inform other visitors in the area CALMLY and BRIEFLY of the problem and assist them in clearing the area. Assist the fire department in keeping visitors away from the area.
7) Contact your volunteer coordinator or the Cultural History Program Coordinator as soon as possible.

Severe Weather

1) In the case of most severe weather, help visitors and other BCPOS staff members find shelter in the nearest building. Be aware of the shelter areas on or near your site.
2) If a tornado is sighted in the immediate vicinity, you will hear a warning siren. If you hear the siren, seek shelter in the nearest building, in the basement, if possible. Help visitors in the area find shelter. If a building is not available, find a low-lying area away from trees. In case of flooding, climb to safety.
3) If an injury occurs, follow the procedures for a medical emergency.

Weather Information System

To be alerted by phone as soon as weather warnings occur, you can sign up for the Everbridge system. It will send a message and/or text to the phone number(s) you enter.
https://member.everbridge.net/index/453003085612231#/login
It gives warnings 24/7 and can be irritating but, even in the middle of the night, better safe than sorry as to what's going on outdoors.

Theft/Vandalism

If you see evidence of theft or vandalism, call dispatch (303-441-4444). DO NOT ATTEMPT to intervene in the situation by yourself. Then report the incident to your volunteer coordinator and/or Cultural History Program Coordinator as soon as possible.

Boulder County Volunteer Policy

An important and valued segment of the county workforce is the large number of volunteers who willingly give of their time on a regular basis, working without any remuneration beyond the personal satisfaction derived from their service. They are expected to adhere to the Code of Conduct as outlined in this manual and they are not eligible for any benefits except as outlined in the Volunteer Policy. It is the policy of Boulder County that skills developed as a volunteer be viewed as important job skills. Therefore, these skills will be considered when screening and selecting applicants for paid positions within the county.

This policy was established with the objective that all volunteers have a positive and productive volunteer experience and that both employees and volunteers understand specific duties and responsibilities associated with the volunteers' activities. The policy will not be construed as creating any contractual rights. Nothing in this policy creates an employment relationship between the County and the volunteer. Volunteers are not considered employees under this manual and volunteers are only covered by sections of this manual that unambiguously refer to volunteers. Specifically, volunteers are not entitled to any rights under Sections 3 through 10 of the manual.

Each county office/department is responsible for determining how to implement this policy. Unless otherwise stated (see Section F), all sections in this policy refer to both ongoing and one-time/short-term volunteers.

A. Employee/Volunteer Relationships
The relationship between employees and volunteers is a partnership. Volunteers have staff supervisors who are available for consultation, support and direction.

B. Volunteer/Client Relationships
The relationship between a volunteer and a client is guided by a profound respect for diversity and a belief in human potential, recognizing that each person has an individual dignity worthy of respect. Volunteers shall respect the preferences and decisions of clients and refrain from applying undue pressure in the clients' matters of choice. Volunteers shall maintain a level of confidentiality equal to that expected of paid staff. Volunteers shall not financially profit directly or indirectly from a client or engage in activities that pose a conflict of interest.

C. Definition of a Boulder County Volunteer
A Boulder County volunteer is a person who gives time or expertise to county government, its staff and clients with no recompense or payment for services to county offices/departments or programs. The person may be donating time or expertise or may be in a service-learning project for school or college. The person may be an ongoing volunteer or a one-time-only project volunteer. County staff may volunteer for Boulder County with prior approval from HR and their EO/DH, in order to ensure compliance with the Fair Labor Standards Act.

D. Recruitment
Volunteer recruitment efforts target broad community involvement and do not discriminate on the basis of race, color, religion, age, gender, gender identity, sexual orientation, disability, socio-economic background, national origin or genetic information.

E. Volunteer Job Descriptions

Volunteer job descriptions are guides for volunteer opportunities in county government. These descriptions should include job title, objectives, responsibilities, minimum qualifications, training provided, supervision, time commitment, and benefits if applicable to the job. Volunteers must be given a written job description prior to placement.

If a community group is volunteering for a one-time or short-term volunteer project, the designated group contact should receive the group project description and minimum qualifications prior to the project start date and should be responsible for sharing this information with the rest of his/her group to ensure suitability.

F. Interviewing Ongoing Volunteers

All potential ongoing volunteers shall complete a volunteer application prior to placement. Also, they shall be interviewed to ensure suitability for volunteer placements, which are determined by interests, qualifications and jobs available. During the interview process, potential volunteers will learn about the volunteer opportunities available with county government and the mission of the particular office/department or division in which they are interested. However, volunteers who do not meet minimum qualifications may not be invited in for an interview.

G. Screening

Applicants must meet all required qualifications for the assignment. In addition, applicants must agree to background, motor vehicle, and reference checks when required for their job.

H. Placement of Volunteers

In determining suitable placements for volunteers, attention is given to the interests and goals of the volunteers and to the needs and requirements of the office/department. Volunteers may decline a proposed placement or request changes to the job prior to or following placement.

Volunteers are informed of the responsibilities of each job, along with any risk the job entails. If determined to be required for their volunteer job, volunteers must sign a liability release waiver, confidentiality agreement, and other applicable legal forms prior to starting their volunteer assignment.

I. Orientation and Training

Orientation includes an introduction to the work of Boulder County government and to the office/department where the volunteer is being placed. Prior to starting a volunteer assignment, all volunteers shall receive a copy of the county's Multicultural Diversity and Equal Employment Opportunity and Unlawful Discrimination policies or will be referred to a copy of the policies posted on the Boulder County public website.

In addition to orienting the volunteer the office/department has the responsibility to provide current and timely training to volunteers. The training will be general as well as job specific. Learning and skill development opportunities may also be made available throughout the volunteer's tenure. When possible, volunteers may attend appropriate in-service staff trainings or workshops.

J. Record Keeping

1. Volunteer records should be maintained electronically. These records should include name, address, phone number, email address, job assignment, dates of service, and hours contributed as well as relevant skills or experience, training received, and recognition. Each volunteer program shall maintain copies of volunteer documents, including any confidential information, in accordance with Boulder County policy.

2. Tracking Volunteer Time During Declared Emergencies
All volunteers who are utilized during a declared emergency shall track their time using designated forms which have been preapproved to meet FEMA standards, even if it is not a federally declared emergency.

K. Evaluations
The office/department will monitor and may evaluate work performances. Performance evaluations are encouraged at the conclusion of the assigned project or at least an annual basis, or when requested by the staff, the volunteer manager or the volunteer.

L. Volunteer Performance
The staff and volunteer manager will discuss with the volunteer any need for changes in work style, seeking suggestions from the volunteer on means of enhancing the volunteer's relationship with the agency, conveying appreciation to the volunteer and gauging the continued interest of the volunteer serving in that job. In appropriate situations, additional training, re-assignment to another job, or separation from volunteer service may be required.

M. Recognition
Recognition is an important component of the county's commitment to the public's participation in its work. Volunteers will be recognized for their efforts, the fulfillment of their commitment and the quality of their work.

N. Separation from Volunteer Service
Most volunteer jobs are for a defined time period and volunteers are asked to honor that time commitment. However, volunteers may resign at any time for any reason. There is no mandatory retirement age for volunteers. Volunteers who fail to satisfactorily perform their volunteer assignments are subject to suspension or separation. Prior to separation of a volunteer, the volunteer should be given an opportunity to discuss any reasons for separation with both their staff supervisor and the Volunteer Program Manager.

O. Insurance
Boulder County offers the following protection to volunteers:
1. Liability claims: The County's liability coverage may be extended to volunteers for volunteer responsibilities. Volunteers may be covered for claims made against them individually or to protect and defend them if sued for an action while doing business within the scope of their part of a joint claim.

2. Auto Liability Claims: If a volunteer uses his/her personal vehicle while conducting county business and has an accident which causes damage to the other vehicle or physical injury to its passengers, primary coverage will be from his/her personal automobile insurance policy. If claims exceed the policy limits, the county's auto liability coverage may provide additional coverage.

3. Accident Injury: Accident medical expense protection has been purchased for volunteers. If injured while volunteering, this policy will cover expenses that are reasonable and customary per policy provisions. Coverage limits for the volunteer are $25,000 written as an excess plan to any other type of health insurance including Medicare. If the volunteer has no health insurance, this excess coverage becomes primary. Accidental Death is subject to a $5,000 limit and specific or dismemberment coverage is subject to a maximum limit of $10,000. Limits and coverage provisions are subject to change according to insurance carrier terms and conditions.

Equal Employment and Unlawful Discrimination

A. Introduction and Policy Statement
The county is dedicated to the principles of equal employment opportunity. We prohibit unlawful discrimination against applicants or employees on the basis of race, color, religion, gender, gender identity, national origin, age forty (40) and over, disability, socio-economic status, sexual orientation, genetic information, or any other status protected by applicable federal, state or local law.

B. Americans with Disabilities Act As Amended (ADAAA) and Religious Accommodation
The county will make reasonable accommodation for qualified individuals with known disabilities and employees whose work requirements interfere with a religious belief unless doing so would result in an undue hardship to the County or cause a direct threat to health and safety. Employees needing accommodation are instructed to contact their supervisor or HR.

C. Equal Employment Opportunity (EEO) Harassment
The county strives to maintain a work environment free of unlawful harassment. In doing so, the county prohibits unlawful harassment because of race, color, religion, gender, gender identity, national origin, age forty (40) and over, disability, socio-economic status, sexual orientation, genetic information, or any other status protected by applicable federal, state, or local law. Unlawful harassment includes verbal or physical conduct that has the purpose or effect of substantially interfering with an individual's work performance or creating an intimidating, hostile, or offensive work environment. Actions based on an individual's protected status will not be tolerated. Prohibited behavior may include but is not limited to the following:

• Posting, emailing, or distributing materials in written form such as cartoons, e-mails, posters, drawings, and photographs

• Verbal conduct such as epithets, derogatory comments, slurs or jokes

• Physical conduct such as assault, or blocking and individual's movements

This policy applies to all employees including directors, managers, supervisors, and co-workers. Non-employees such as, vendors and consultants are expected to comply with this policy as a condition of their contracts. Employees, contractors, and consultants are also prohibited from harassing customers and clients on the basis of the protected status of the customers and clients.

D. Sexual Harassment
Because sexual harassment raises issues that are to some extent unique in comparison to other types of harassment, the County believes it warrants separate emphasis.
The county prohibits sexual harassment and inappropriate sexual conduct. Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, when:

• Submission to such conduct is made explicitly or implicitly a term or condition of employment

• Submission to or rejection of such conduct is used as the basis for decisions affecting an individual's employment
• Such conduct has the purpose or effect of substantially interfering with an individual's work performance or creating an intimidating, hostile, or offensive work environment

All employees are expected to conduct themselves in a professional and business-like manner at all times. Conduct which may violate this policy includes, but is not limited to, sexually implicit or explicit communications whether in:

• Written form, such as cartoons, posters, calendars, notes, letters, e-mails

• Verbal form, such as comments, jokes, foul or obscene language of a sexual nature, gossiping or questions about another's sex life, or repeated unwanted requests for dates

• Physical gestures and other nonverbal behavior, such as unwelcome touching, grabbing, fondling, kissing, massaging, and brushing up against another's body

This policy applies to all employees including directors, managers, supervisors, and co-workers. Non-Employees such as vendors and consultants are expected to comply with this policy as a condition of their contracts. Employees, contractors, and consultants are also prohibited from sexually harassing customers and clients.

E. Complaint Procedure
If you believe there has been a violation of the EEO policy or harassment based on a protected class, including sexual harassment, please use the following complaint procedure. The county expects employees to make a timely complaint to enable the county to investigate and correct any behavior that may be in violation of this policy.
Any employee, who believes that she or he has been discriminated against, harassed, and/or retaliated against, has a number of options. The employee should select the route that feels most appropriate for the circumstances. The employee may file a complaint with any of the following:
1. the employee's immediate supervisor, or
2. the employee's supervisor's supervisor, or
3. the EO/DH in the office/department where the employee works, or,
4. HR

If an employee believes that his or her personal safety is in jeopardy because of harassment while working outside of regular business hours, the employee should leave work immediately and notify one of the above as soon as possible.
Supervisors/managers who become aware of instances or allegations of discrimination, harassment, and/or retaliation by or against a county employee must report it to HR immediately. A supervisor/manager who fails to report an instance of, or an allegation of, discrimination, harassment and/or retaliation may be subject to discipline, up to and including termination.

F. Investigation and Confidentiality
Upon notice of a complaint involving potential discrimination, harassment, and/or retaliation HR will promptly investigate the complaint. The county will strive to protect the confidentiality of all aspects of

its investigation; however, the county cannot guarantee confidentiality. All employees are expected to cooperate with HR during the course of an investigation of discrimination, harassment, and/or retaliation.

The county prohibits retaliation against an employee for filing a complaint under this policy or for assisting in a complaint investigation. If you perceive retaliation for making a complaint or your participation in the investigation, please follow the complaint procedure outlined above. The situation will be investigated.

If the County determines that an employee's behavior is in violation of this policy, the employee will be subject to discipline, up to and including termination of employment. All sanctions will follow the policies and procedures of this manual.

LEADING PROGRAMS/INTERPRETATION TIPS

Notes on Discipline for Children's Tours/Programs

The majority of children's groups are well behaved. Most often, visiting children are excited to be outdoors and/or with a special guest and/or are eager for new information. However, from time to time, an individual child or group will create unexpected problems.

Sometimes this is due to our interpretive program setting being more relaxed, novel, and stimulating compared to the normal classroom setting. When programs are designed for families (such as Fun on the Farm) children may be distracted by other kids they know, or shy because they don't know anyone. Although it is not your job to teach discipline in an hour-long interpretive program, you will still need adequate control of the group. Otherwise the experience may deteriorate for everyone.

For on-site family programs, invite children to participate. If they are shy at first, let it go—they may warm up when they see how much fun it is!

DISCIPLINE SUGGESTIONS

1. **Set realistic expectations when working with children.** They are not miniature adults. Children are in the process of growing up. They have different attention spans, interests, and thought processes. You cannot expect them to behave as adults or have the same responsibilities as adults. It is important to show them you care about them; acknowledge their fears and apprehensions. Do a lot of active listening. The best interpreters develop an ability to listen to four different questions at once!

2. **Have a good attitude.** Only three things are certain -- You're there, the kids are there, and the site is there. Accept things as they are; wishing things were different will not help you.

3. **Be an active leader.** Set specific behavioral boundaries and expectations at the beginning of your program. You may need to add to and/or reinforce at the beginning of a new activity. Be consistent in handling problems; do not make unenforceable threats!

4. **Solicit help from the parent's at the beginning of the program**, especially if you sense an active group right away. "Parents (make eye contact), I'm going to need your help to make sure everyone stays together and safe." Now you're sharing the responsibility of discipline. This is really hard to do halfway through a program when you've already lost control. See #5 for individuals.

5. **Act on an individual behaviors quickly**. Be specific -- "Karen, the rule is to stay on the trail" or "Jim, remember no running ahead, and please stay behind me."

6. **Solicit a teacher's (or parent's) assistance in managing a problem child.** Often, adults at a program feel uncomfortable interrupting. But when asked, they will help you. Suggest to an adult she walk

with the problem child. Often when an adult shadows a child, that act alone will keep the child quiet and paying attention.

7. **Avoid loudly correcting or scolding an individual or group.** Don't yell -- yelling only confirms that you have lost control. And, it often makes everyone at the program (including you) feel uncomfortable.

8. **Give a problem child something to do (instead of making trouble).** Make that child responsible for carrying props/replicas, etc.

9. **Model appropriate behavior** (picking up someone else's litter, speaking quietly around livestock or wildlife, staying on the trail) and you will find children following your lead without you having to lecture.

10. Remember: when you need to make a disciplinary suggestion, do so with politeness and respect to get a positive result.

After the program, contact the Volunteer Program Specialist and explain any problem(s) you had so they can follow up with advice and new strategies.

Tilden's Original Six Principles

Freeman Tilden was the first person to formalize and record the prevailing thinking on the principles of effective interpretation. He did so in his book Interpreting Our Heritage, first published in 1957.

I. Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.
II. Information, as such, is not Interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.
III. Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable.
IV. The chief aim of Interpretation is not instruction, but provocation.
V. Interpretation should aim to present a whole rather than a part, and must address itself to the whole man rather than any phase.
VI. Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults, but should follow a fundamentally different approach. To be at its best it will require a separate program.

(From Tilden, Freeman. Interpreting Our Heritage. 1977. 3rd edition. Chapel Hill: University of North Carolina, P. 9.)

Cable and Beck's Interpretive Principles

Expanding on Tilden's original six principles, Larry Beck and Ted Cable offer the following fifteen guiding principles for interpreting nature and culture:

1. To spark an interest, interpreters must relate the subject to the lives of the visitors.
2. The purpose of interpretation goes beyond providing information to reveal deeper meaning and truth.
3. The interpretive presentation – as a work of art – should be designed as a story that informs, entertains, and enlightens.

4. The purpose of the interpretive story is to inspire and to provoke people to broaden their horizons.
5. Interpretation should present a complete theme or thesis and address the whole person.
6. Interpretation for children, teenagers, and seniors – when these comprise uniform groups – should follow fundamentally different approaches.
7. Every place has a history. Interpreters can bring the past alive to make the present more enjoyable and the future more meaningful.
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11. Interpretive writing should address what readers would like to know, with the authority of wisdom and the humility and care that comes with it.
12. The overall interpretive program must be capable of attracting support – financial, volunteer, political, administrative – whatever support is needed for the program to flourish.
13. Interpretation should instill in people the ability, and the desire, to sense the beauty in their surroundings – to provide spiritual uplift and to encourage resource preservation.
14. Interpreters can promote optimal experiences through intentional and thoughtful program and facility design.
15. Passion is the essential ingredient for powerful and effective interpretation – passion for the resource and for those people who come to be inspired by the same.

(Beck, Larry, and Ted Cable. 1998. Interpretation for the 21st Century. Champaign, IL; Sagamore Publishing. Pp. 10 – 11.)

The Interpretive Approach

Interpretation serves a Purpose.

The program can and should support the mission and goals of the organization.

Interpretation is Organized.

Formal interpretation has an introduction, a body, and a conclusion.

Interpretation is Enjoyable.

People participate in interpretive programs because they want to, not because they have to, so they expect to enjoy themselves.

Interpretation is Thematic.

People tend to remember themes but forget the strings of facts.

Interpretation is Relevant.

People respond better to things that relate directly to their knowledge or experience as individuals or as human beings.

You make the difference.

Your passion and individual style can make the difference in how audiences respond.

Interpretation is Organized

Organizing your presentation increases the chances that your audience will retain some of what you present. An organized talk is easier to comprehend, allowing the interpretive audience to enjoy themselves rather than work at comprehending it.

A well-organized presentation includes a stated objective and:

1. **Introduction –** lays the foundation and lets the audience know what to expect.
2. **Body –** contains the main points you want to make in support of the theme (five or fewer).
3. **Conclusion –** provides closure and reinforces the theme.

Interpretation is Relevant

Personalize it

- Use first names
- Reference the self (think of the last time you …)
- Use "labeling" (people who enjoy nature …)

Make it meaningful

- Relate to universal concepts (love, freedom, hunger)
- Connect with something within the audience's frame of reference
- Bridge the unfamiliar to the familiar with metaphors, similes, analogies, and comparisons

Learning Styles

People learn differently. If you plan for a variety of learning styles in your presentation, then you increase the chance that your message will be accepted.

Auditory learners must hear the information.
Verbal learners must read the information.
Visual learners must see the information.
Kinesthetic learners must interact with the information.

By addressing a variety of learning styles in your program, you may also be addressing the special needs of people with disabilities. Remember that a program that relies on slides alone is meaningless for someone with visual impairment.

What's Hot, What's Not

As you gather your resource material, remember:
People love to hear…..

- Good stories
- Unusual facts (catfish have over 100,000 taste buds all over the surface of their bodies)
- Inspirational thoughts and quotes
- Gee-whiz information in terms they understand (over 4,000,000 bathtubs full of water go over the falls every hour)

- Things that evoke emotional or physiological responses (scary things, beautiful things, sad things, happy things)
- What's important to them

But don't really care much about…..

- Ordinary scientific data (this waterfall averages 3,694,524 cubic feet per second in flow)
- Doom and gloom predictions or rehashings of catastrophes (the ozone layer will be totally depleted, and the Earth will burn up in X number of years)
- The same thing they've heard or read at every other interpretive site or talk they've ever been to (65 million years ago, this area was covered by a vast inland sea)

What are some specific things you could incorporate into your presentation that someone would love to hear about?

Questioning Strategies

People enjoy being engaged in the program. One way to encourage their participation is to ask questions. A questioning sequence can be used to "pull" the audience through the program, allowing them to interpret their own observations.

Open questions: This type of question has no wrong answers. Use these questions early in the program to allow everyone the immediate opportunity to participate regardless of their experience or knowledge level.

What do you see as you look at the hillside?

Focusing or data-recall questions: Visitor recites a specific number, list, or statement. Use these questions to focus attention on specific data as a central point of discussion.

What are some things that are helping the log decay?

Interpretive or data processing questions: Visitor uses data to show relationships or analyze.

How does the wood strength or texture of these two trees compare?

Capstone or application questions: Visitor summarizes, predicts, theorizes, or applies principles to a new way of thinking.

How would this area be different if the forest had not burned?

Response Strategies

The way you respond to questions you've asked set the tone for your interpretive program. If you are welcoming and receptive to visitor comments, more discussion is generated and the likelihood of success is enhanced.

Questions asked by visitors are also a valuable source of feedback. If you analyze those questions, they can tell you if your message is being communicated effectively or needs further clarification.

Responses can be classified in three ways. The most appropriate response will be dictated by the individual situation and the personal style of the interpreter.

Accepting response is always the ideal:

- **Passive acceptance** – nodding your head, saying okay without judgment or evaluation
- **Active acceptance** – expressing your understanding of what the visitor is saying ("So you're saying that …")

- **Emphatic acceptance** – expressing your feelings as you show that you understand the visitor's response ("I can see you're upset by the litter. So am I.")

Clarifying response clears up what the visitor is trying to say:

- Could you explain what you mean by "expansion?"

Facilitating data supply the needed information in any one of a number of ways:

- Provide an opportunity for discovery by themselves
- Serve as a data source
- Use other audience members
- Refer to other sources
- Make materials for the visitor to determine the answer

Silence is Golden. Don't rush to supply a response. Give the audience time to think, allowing up to fifteen seconds before you jump in. Studies have shown that the longer you wait, the more in-depth the response you receive.

Guided Tours—helpful for programs as well

You can structure the guided tour much like a regular program, but be sure that you:

1. Start on time and return to the starting point when promised.
2. Take charge. You are the leader of the group, and the visitors depend on you to get them from start to finish safely.
3. Even if you've met everyone informally while the group was forming prior to the tour, take the time to greet them as a group, and structure the experience.
4. If you have people who may not be physically up to the challenge of your tour, try to take them aside before you start and explain the physical demands of the tour. Make them feel welcome, but help them make the right choice for their comfort.
5. Establish a "staging area" where people can gather prior to the tour. This is your chance to meet the group and establish rapport before beginning your presentation. Your presence will indicate the location of the staging area, so be sure to arrive at least ten to fifteen minutes prior to your scheduled program.
6. After your introductory statements (usually delivered at the staging area), move out briskly for the first stop, and then set a moderate pace to the remaining stops. If possible, make your first stop within sight of your starting point so that latecomers can join you.
7. Stay ahead of your group between stops.
8. Make sure everyone is focused on you before you begin speaking at every stop.
9. Be conversational – but be heard.
10. Repeat questions so all can hear.
11. Share discoveries and take advantage of teachable moments.
12. Have a definite dismissal point. Avoid abrupt endings, but make it clear that you're done.
13. Thank everyone and offer to stay after to answer questions. Invite them to join you again.

Your Voice

A good speaking voice is:

- Expressive
- Natural
- Pleasant
- Vital

To help develop your most effective speaking voice, work on these items:

Breathing -- Use short sentences to allow natural breathing space.
Pitch -- Vary the tone to avoid monotones or annoying patterns.
Vocal Climax -- Plan a dramatic crescendo or whisper for emphasis.
Pronunciation -- If you don't know it, look it up and practice.
Enunciation -- Keep your words clear so everyone can hear.
Rate -- Vary the rate according to the material.
Quality -- Strive for mellow tones – avoid harsh, nasal, or quavery voice.
Pause -- Use dramatic pauses for emphasis.
Volume and Force -- Avoid shouting at your audience or using explosive force.

Nonverbal Communication

Body language can speak much louder than your voice. Practice your presentation in front of a mirror or on videotape to help develop a body language as pleasant as your voice. Watch for the following:

Attitude – Avoid deep sighs, frowns, clenched teeth, and furrowed brows. They all say that you'd rather be somewhere else. Smile – it lets your audience know you enjoy what you're doing.

Posture – Too stiff, and you'll seem uncomfortable. Too slumped, and you'll seem bored. Better to stand up straight, but relaxed, to give your audience the impression that you have the confidence to lead them.

Distracting hand or body movements – Keep hands in a natural position. Avoid clasping your hands, wringing your fingers, and scratching your head or chin (or other body parts). Don't stand rooted to one spot, but avoid pacing or weaving (shifting weight from one foot to the other).

Using the body to illustrate a point – Act naturally and your body will automatically help you illustrate points in your presentation without seeming contrived.

Dress and hair – Be clean and neat in your overall appearance. Keep hair out of your face so your audience can see your expressions. If you wear a uniform, wear it properly. If you don't wear a uniform, be sure your clothes are appropriate to the occasion and clean.

Jewelry – Keep jewelry and watches simple so they do not detract from your presentation.

Tattoos and body piercings – Unless these are part of a uniform, they do not convey a professional image and may make audience members uncomfortable. Cover tattoos with

clothing, and leave the body piercing rings and studs at home.
Cell phones – If you carry a cell phone, please turn off the ringer or turn the phone off completely.

Ten Guidelines for Handling Visitors

1. Do not frown or scowl at visitors.
2. Ask pleasantly if you can be of service to visitors.
3. Make yourself a storehouse of information for visitors, and cheerfully share your knowledge with them.
4. Do not bluff or attempt to deceive when asked a question for which you do not know the answer. It is okay to simply say, "I don't know." At that point, a good interpreter will at least offer to find out the answer, and follow up with the visitor if they so wish.
5. Answer the same question once again with a smile even though you're exhausted and may have answered it 100 times already that day.
6. Be neat and clean. It shows respect for your visitors.
7. Be as prompt as possible when greeting and serving visitors.
8. Happy children mean happy parents. Do what you can to keep them all happy, and your workplace will benefit.
9. Encourage visitors to stay and enjoy themselves, here and at other sites on their journey, so that the entire system benefits.
10. Send visitors on their way with smiles – on your face and theirs.

Boulder County Parks & Open Space
Mining Museums
Volunteer Handbook

Nederland Mining Museum (NMM)
&
James F. Bailey
Assay Office Museum (AOM)

Updated, proofed
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Volunteer Handbook for the Mining Museums: NMM and AOM

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What is Interpretation?

As a volunteer with the Mining Museums of Boulder County, you will be conducting interpretation, as well as orientation. What is interpretation? The National Association for Interpretation (NAI) defines interpretation as a "communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource." (Brochu and Merriman, 2002).

What is an interpreter?

When most people hear the word interpreter, they think of someone who translates the meaning of one language into another. In a museum, zoo, or park setting interpreters "translate" artifacts, collections, and physical resources into a language that helps visitors make meaning of these resources. Credit for using the word interpretation to describe the work of exhibit designers, docents/museum guides, and naturalists goes to John Muir who penned in his Yosemite notebook: "I'll interpret the rocks, learn the language of flood, storm and the avalanche. I'll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can." (John Muir, 1896).

The word interpretation is, at times, awkward for describing what naturalists, exhibit designers, and docents (or museum guides) do because it does not always adequately capture the full range of what an interpreter does. Another term for interpreters could be visitor experience specialists. They provide orientation, information and inspiration in the right amounts and at the right times so that visitors will have more enjoyable, meaningful and complete experiences. As interpreters, it is important to remember that interpretation is not just a listing of facts, dates, or figures. It is at its best, a great story told that provokes a spark, and leaves visitors wanting to know more.

As a volunteer, ask yourself: ***Are you meeting these goals for visitors?***

FREEMAN TILDEN'S PRINCIPLES

Freeman Tilden, (1883-1980) a newspaper columnist and author, decided he needed a change in his life at age 58. When his friend National Park Service Director Newton Drury invited him to work with the National Park Service, he entered the field of interpretation and forever changed the profession. In traveling to various parks to write books about the national park system he became concerned about the quality of interpretive programs in parks. This concern eventually led him to write his foundational book***, Interpreting Our Heritage,*** published in 1957. It is in Interpreting Our Heritage that Tilden outlines his enduring principles of interpretation:

1. Any interpretation that does not somehow relate what is being displayed or described to something within the personality or experience of the visitor will be sterile.
2. Information, as such, is not interpretation. Interpretation is revelation based upon information. But they are entirely different things. However, all interpretation includes information.

3. Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical or architectural. Any art is in some degree teachable.
4. The chief aim of Interpretation is not instruction, but provocation.
5. Interpretation should aim to present a whole rather than a part and must address itself to the whole man rather than any phase.
6. Interpretation addressed to children (say, up to the age of twelve) should not be a dilution of the presentation to adults but should follow a fundamentally different approach. To be at its best, it will require a separate program. (Freeman Tilden, 1957)

FIFTEEN PRINCIPLES OF INTERPRETATION

Larry Beck and Ted Cable authored the book Interpretation for the 21st Century (1998) to provide direction in the field at the turn of the millennium. As professors that teach coursework in interpretation, they have written extensively in the fields of natural resource management and interpretation. Building upon the work of Enos Mills and Freeman Tilden, they developed Fifteen Principles of Interpretation:

1. To spark an interest, interpreters must relate the subject to the lives of visitors.
2. The purpose of interpretation goes beyond providing information to reveal deeper meaning and truth. NPS–Interpretive Development Program—3/1/07 Professional Standards for Learning and Performance 4
3. The interpretive presentation – as a work of art – should be designed as a story that informs, entertains, and enlightens.
4. The purpose of the interpretive story is to inspire and to provoke people to broaden their horizons.
5. Interpretation should present a complete theme or thesis and address the whole person.
6. Interpretation for children, teenagers, and seniors – when these comprise uniform groups – should follow fundamentally different approaches.
7. Every place has a history. Interpreters can bring the past alive to make the present more enjoyable and the future more meaningful.
8. High technology can reveal the world in exciting new ways. However, incorporating this technology into the interpretive program must be done with foresight and care.
9. Interpreters must concern themselves with the quantity and quality (selection and accuracy) of information presented. Focused, well-researched interpretation will be more powerful than a longer discourse.
10. Before applying the arts in interpretation, the interpreter must be familiar with basic communication techniques. Quality interpretation depends on the interpreter's knowledge and skills, which should be developed continually.
11. Interpretive writing should address what readers would like to know, with the authority of wisdom and the humility and care that comes with it.
12. The overall interpretive program must be capable of attracting support – financial, volunteer, political, administrative – whatever support is needed for the program to flourish.

13. Interpretation should instill in people the ability, and the desire to sense the beauty in their surroundings – to provide spiritual uplift and to encourage resource preservation.
14. Interpreters can promote optimal experiences through intentional and thoughtful program and facility design.
15. Passion is the essential ingredient for powerful and effective interpretation – passion for the resource and for those people who come to be inspired by the same.

Formal Interpretation vs. Informal Interpretation

At the mining museums of Boulder County Parks and Open Space, we conduct two type of interpretation – formal and informal. You have the opportunity to participate in both, depending on your interest. As a volunteer Museum Guide, you will be conducting informal interpretation every day the museums are open to the public. All types of interpretation are governed by the guiding principles of the interpretive equation:

KA + KR * AT = IO

(Knowledge of the Audience) + (Knowledge of the Resource) * (Appropriate Technique) = Interpretive Opportunity

Informal Interpretation

Informal interpretation interacts with audiences, provides information, creates interpretive opportunities, protects resources, and promotes safety (NPS.gov website). It is not on set time schedule, and time spent on it is governed by the visitor.

Depending on what your audience wants to know, this could result in general orientation or go deeper into making a connection with him about mining in the area.

Interpretation is never forced onto someone. Ask questions of them first, discover what their needs are. Find out how much time they have. Let their needs and wants dictate how much or little interpretation you will provide. Even though you have a lot of excitement and knowledge to share with visitors, they may just want casual conversation now and then for their visit or the reassurance that you are there to answer questions as they come up, not to guide them through the entire museum. Other visitors may enjoy you coming along with them as you examine artifacts together. Try to gauge this to make for satisfying interactions for you and the visitors.

Formal Interpretation

Formal Interpretation is a set program that is structured. The topic, start time, end time are all set ahead of time and advertised as such.

Example: At 1:30 p.m. each day, we will have a Mining and Milling talk at the stamp mill that will last 30 minutes.

Formal programs are developed ahead of time using a theme that depicts a larger story though they don't need to be scripted and exactly the same no matter which volunteer or staff member conducts them. You can still share information on areas of mining or artifacts that most fascinate you so that your enthusiasm shines.

Background Context: whys of geology and mining in Colorado

Gold was the catalyst for rapid growth in Boulder County and establishment of mountain towns. The mining of other materials would springboard off the key discovery of gold.

Overview

The discovery of gold in Colorado enticed thousands of people from the United States and foreign countries to establish a new life in a region that had been deemed by Major Stephen Long in 1820 as "unfit for human habitation, and of course uninhabitable by people depending on agriculture for their subsistence." For almost forty years after his expedition to the source of the Platte River, Colorado remained the territory of Native Americans, fur trappers and explorers.

When gold was discovered the population exploded with over 50,000 people coming to Colorado between 1858 and 1859. Businesses catering to miners were established, railroads were built to transport gold and people, and new agricultural techniques on the high plains provided food for the abundant mining towns.

Wherever gold was discovered, mining camps soon sprung up. These towns, populated by people from all over the world, depended on the success of nearby mines. Some of these mining towns have survived the boom and bust cycle of mining; only foundations and cemeteries remain of others.

Boulder County's mining history is a central part of the area's landscape today. Abandoned mines, dumps, mills, and associated mining structures are scattered among the hills; railroad grades have been transformed into trails and roads.

A selection of these sites is featured as Boulder County Hard Rock Mining Tour sites. This is a virtual tour—online at http://bouldercountyopenspace.org/hard-rock-mine-tour/mhome.html Each stop on such tours focus on one of more aspects of mining as part of Boulder County's rich history. The NMM's artifacts excel in telling a complete and varied story of hard rock mining in Boulder County.

Geologic History

Boulder County straddles the transition zone between two great geographic regions in North America: The Front Range of the Southern Rocky Mountains and The Great Plains. The abrupt and dramatic rise from the mile-high prairie to over 14,000 feet at Longs Peak creates Boulder County's diverse landscapes and plays a vital role in our rich hard rock mining history.

Ancient Landscapes

Three hundred million years ago, the Ancestral Front Range uplifted about 30 miles west of where the Front Range is today. Millions of years of weathering and erosion wore those ancient peaks

away and buried them in sediment and debris thousands of feet thick. Shallow seas periodically advanced and retreated from Colorado, and dinosaurs evolved and went extinct.

Birth of the Colorado Mineral Belt

Renewed uplift began about 65 million years ago, fracturing and tilting sedimentary rock layers and setting the stage for our hard rock mining heritage. The Colorado Mineral Belt was created during this mountain-building period, as mineral-rich solutions were injected into fractures of older rock. These solutions hardened to form veins of precious metals, which have been mined extensively in Boulder County and throughout the mountains of Colorado. Gold, silver, lead, zinc, and tungsten have all been part of Boulder County's colorful mining history.

Today's Rockies

About nine million years ago, the most recent episode of mountain-building began forming the present-day Rocky Mountains. The western U.S. from the Sierra Nevada Range in California to the Colorado Front Range was uplifted by 5,000 feet or more. During this period, Colorado's 14,000-foot peaks were born. Deep valleys and canyons were cut as erosion was accelerated by the regional uplift.

Finishing Touches

As wind, water, ice, and gravity continued to erode and transport sediment downstream, nearly two-billion-year-old rocks were exposed along the Continental Divide to the west. Within the last two million years, valley glaciers above 8,000 feet sent sands, gravels, and rocks to the plains below, carving out the high-country scenery that we enjoy today. Today's landscape is only the most recent chapter in the dynamic and ongoing geologic story of Boulder County.

Mining in Boulder County

In 1857 gold was found in Cherry Creek, in present-day Denver, luring thousands of people to the Rocky Mountain region. One party, led by Thomas Aikens, departed from the stream of gold-seekers and camped near Red Rocks at the mouth of Boulder Canyon in the fall of 1858. That fall and winter they started prospecting Boulder, Four Mile, St. Vrain, and Sunshine creeks. In mid-January of 1859, while prospecting on Four Mile Creek a significant

amount of color (or gold) was discovered. The digging, called 12 Mile Diggin's, was the beginning of the discoveries of significant lodes and the of the town of Gold Hill. By 1860, 1,500 to 2,000 of the 4,000 people living in the Nebraska Territory resided in Gold Hill. The Nebraska Territory covered the area from the 40th parallel, which is now Baseline Road, to the Canadian border and from the Missouri River to the Continental Divide in part of the region that became the state of Colorado in 1876.

Experienced miners and people with golden dreams came west to find a new future. Some came west in search of job security and a good wage; others came for adventure or to fulfill their dreams of upward mobility. Many people did not see mining as permanent endeavor and expected to get rich quick and move on to stable life. Prospectors and miners-often bachelors-trekked up the Boulder County's canyons in search of color. A few struck it rich and many survived on the dreams of getting rich. New camps and towns were established and disappeared with the boom and bust cycles of the mining industry. Wall Street is one of the camps that survived through the years, tucked away in a wide spot in Four Mile Canyon.

Hard Rock Mining

Gold, silver, and other rare metals were found throughout the Front Range of the Rocky Mountains. Around Nederland, these were often covered with a layer of hard, black tungsten ore. All such metals are much harder than coal, and are embedded in hard rock, like granite and quartz. This is why mining for these metals is called hard rock mining.

Tungsten is an extremely hard metal with the highest melting point of6191°F. It is used in an alloy to make steel stronger and to make metal tool and die cutters, armor, and light bulb filaments. It is also used in space exploration to line the outside of ships going through the atmosphere.

In hard rock mining, miners have to get the ore out by drilling an 18-30" hole to hold dynamite. Drilling was once done by hand with a set of drills (called steels) that look like railroad spikes. Miners could drill alone, a single jack, or in teams of two, a double jack. In double jacking, one miner would hold the drill and the other would strike it with a sledgehammer. Once steam (and then compressed air) became available, miners drilled using jack hammers equipped with powered by those technologies. Such drills are mounted on steel pipes or stand alone with a diagonal leg.

Once holes are drilled, miners pack them with dynamite, light the fuses, and get out of the way of the exploding rock! After the explosion, miners shovel, or muck, the loose ore (rock) into ore cars. If the mine has a horizontal shaft, they ore cars are pushed by men or engines (they used to be pushed

by mules)to the mine opening. In a mine with a vertical shaft, ore cars are pushed to the shaft and the ore dumped into large buckets to be lifted to the mine opening by a winch.

General Timeline of Boulder County's Hard Rock Mining History

1540 Francisco Vasquez de Coronado journeys into New Mexico looking for cities of gold
1710 Spanish fighting Utes in southern Colorado hear tales of gold
1711 Traders come up from Taos and Santa Fe
1806 Zebulon Pike expedition into mainly southern Colorado
1820 Stephen Long of the U.S. Army is sent west to see what value its resources hold for a growing country. He passes through the region and returns east call the continent's entire mid-section the "Great American Desert".
June 22, 1850 The first gold found by "white men" in what would become Colorado was found in Clear Creek on this date by a man named Lewis Ralston who was a member of a wagon train bound for California. Ralston found $5 worth of gold in his first pan. John Lowery Brown, who kept a diary of the party's journey from Georgia to California, wrote on that day: "Lay bye. Gold found." In a notation above the entry he wrote, "We call this Ralston's Creek because a man of that name found gold here." Ralston continued on to California but returned to Ralston's Creek with the Green Russell party in 1858. Members of this party founded Auraria (later Denver City) in 1858 and touched off the gold rush to the Rocky Mountains.
1859 Left-handed Arapaho Chief Niwot confronts Wisconsin Gold Mining Company prospectors who build cabins on the site that soon becomes Boulder City.
1859 Gold discovered at Gold Run near the town of Gold Hill.
1860 Jamestown established and mining begins both gold and silver.
1860–1942 Mines operate in Wall Street
1869 Samuel Conger begins mining gold and silver in Caribou.
1871 Bluebird vein discovered (silver).
1873 Schoolhouse is built in Wall Street.
1872 Frederick W. Schulze and wife Emma move to Wall Street,
1875 The Colorado Territory becomes the 38th state in the U.S., the "Centennial State."
1880 Sherman Silver Purchase Act maintains the price of silver
1881 Blue Jay mine opens mining Fluorspar remains open until 1854
1893 Sherman Silver Purchase Act repealed; silver prices drop.

Life in A Mining Town

Many mining towns were scattered in Boulder County's foothills. Each mining town in the West was unique in its location, wealth and individual conditions, however many common threads such as the loss of some social stigmas such as divorce and employment, the geographic mobility of miners, and the struggle to establish and maintain basic living conditions help paint a portrait of life in Colorado's mining towns.

Living Conditions

Natural features constrained the growth of mountain communities. Within the natural confines miners and their families lived under conditions that more closely resembled that of their urban cousins than those of their frontier and rural neighbors. The mining companies and mines provided a catalyst for the development of the mountain towns. Food, services, and shelter were immediately necessary.

When a mine began producing, miners moved in to work followed by merchants, shop keepers, craftsmen, liverymen, gamblers, saloonkeepers, and prostitutes. Food was shipped in from valley towns at high freight rates because of the difficulties of building and maintaining mountain roads. Meat was prepared and stored, often in tunnels dug into the mountains. Vegetables were expensive and only limited amounts could be grown by in the mountains with the cooler temperatures and shorter seasons. The sun-shielding canyon walls also restricted what they were able to grow in the mountains. The inadequate and expensive supply of meats and vegetables was supplemented by abundant wild game.

When a paying lode was found, miners in flooded in looking for work. The increased population demanded additional housing and to accommodate them. Boarding houses allowed men to sleep in shifts according to the mine's schedule. Even though it was crowded, the boarding house had the advantage of women cooking hot meals for the miners.

The increasing number of residents of a small mining camp led to sanitation problems and inadequate public services. Human, animal, and garbage waste was not disposed of properly. Added to that were the smells and waste from the mills.

Pests and contagious diseases were the most serious threat to miners and their families outside of occupational accidents. The most common ailments were diphtheria and diarrhea; altitude, temperature extremes, and mine dust contributed to the high mortality rate.

Miner's Consumption

Mining accidents were common, but the greatest threat to miners came on slowly over years of working in poorly ventilated tunnels filled with fine quartz dust. Miners breathed in this fine quartz dust, which caused scar tissue to form on the lungs leading to increased susceptibility to deadly pulmonary illnesses such as pneumonia and tuberculosis. The introduction of pneumatic drills caused the number of fatalities to skyrocket. The disease, silicosis, has symptoms resembling emphysema and could be fatal by itself. Few records exist on the number of miners that were affected by this disease; however, research has resulted in estimates of 40-90%.

Natural Hazards

Fire, floods, and deep snows contributed to the difficult living conditions. Sparks from trains, untended fires, lightning strikes, and other accidental and unpreventable events started devastating fires that swept through mountain communities that generally had little means of stopping the fire. Deep winter snows often prevented supplies from reaching mountain communities for many days or even weeks. In the spring the snows would start to melt and weather patterns brought in heavy spring snows that quickly melted which were followed by rainstorms that would send torrents of water down narrow canyons washing out small camps precariously located on the banks of once trickling creeks.

The flood of 1894 washed out most of the line of the Greeley, Salt Lake & Pacific that provided service from Boulder. Later, the flood of 1919 resulted in the end of the famed Switzerland Trail of America that serviced the mountain communities.

Leisure

Mining towns were dependent on the production of the mines and their populations usually fluctuated with the boom and bust cycles. Although frequent population shifts occurred and mining was difficult and laborious work, mountain mining towns often created strong communities and held numerous social events. Athletic contests were held including drilling contests and tests of speed and agility. The people of Wall Street formed a baseball team to compete with local towns. Many established camps formed bands. Dances were held every Saturday at the schoolhouse, and once or twice a year an orchestra would come to play. The dances would last all night with the children finding seats and desks to fall asleep on when they finally tired out.

Box lunch socials were held. Women would bring a specially prepared lunch in a decorated box for the men to bid on. The highest bidder would then share the box lunch with the woman who made it.

The Fourth of July was one of the most important holidays of the year. Among the pioneers and miners there was a strong sense of American nationalism that was celebrated on this holiday. Everyone had a day off work and games and contests were held in celebration of the holiday.

Women and Children

Mining camps often grew up almost overnight and were filled with young bachelors and men who had left their families behind in the search for gold. In the 1860 census of the Jefferson Territory (which included Denver) 34,277 people lived in the territory of which only 1,500 were women. When women and children started to arrive very few accommodations were in place for them. Mining camps were inhospitable places for families, and every day women waited with trepidation for their husbands to come from dangerous jobs in the mines. Their families and support networks were far away, and any bad fortune, such as mining accidents or the inability of the mining company to pay its workers, could be a disaster. Struggling against this unstable and isolated environment, women sought to re-create the institutions and services of their previous lives such as schools, churches, and social organizations.

Children were even less accommodated for in mining camps. Schools were often the only place outside of the home where children were supervised. Outside of school, open mines and numerous other dangers and adventures made raising children in mining camps a hazardous endeavor. Even when at home, older siblings were expected to watch younger siblings.

Few families lived year-round in the mining camps. Often the wife and children would live in Boulder or Denver for the bulk of the year to allow children to go to school and provide a respectable society for the women. Many families moved up to the mining camps in the summer when the climate was more hospitable. Fortunes made in the mines were invested far away from the grit and grime of the camp. As a result, camps were better suited for transients than for families.

Immigrants

Chinese placer-miners were among the first to work the creek beds. Many of them came to Colorado after working on the trans-continental railroad and the Cheyenne-to-Denver line. The Chinese were generally quiet and kept to themselves, saving money to send back to China and eventually earn enough for their own passage back. For example, a prominent camp was located at Wall Street and at Orodel at the junction of Four Mile and Boulder creeks. When color became hard to find the Chinese left Wall Street and moved on to other mining camps. Eventually, many returned to China, but some stayed in Denver and went into laundry or restaurant businesses.

The largest group of immigrants to arrive in the 19th century came from the British Isles, especially Cornwall and Ireland. The Cornish were superior hard-rock miners and brought with them methods and techniques that the Americans, who had only limited contact with hard-rock mining, adopted.

They received the nickname of “Cousin Jack” because they were said to always claim to have a cousin back in Cornwall who had the skills the employer sought.

Later, in the 1890s, immigrants from central and southeastern Europe started to find work in the mines. Managers often tried to exploit the national rivalries immigrants brought from their home countries. Encouraging rivalries slowed the formation of unions.

The nationalities also had their social structure where Mexican and Eastern Europeans miners were of low status. Foreigners that were not able to speak English often worked most dangerous jobs and accepted less pay than their counterparts; the pay was better than in their home countries and because they were unable to communicate with the other miners, they often didn’t know they were being paid less. The Chinese and Spanish-speaking Americans, and Indians faced the most severe discrimination, segregated geographically and occupationally and facing harassment from the community.

Prospectors, Miners, Investors, and the People Who Opened Boulder County’s Mines

Thousands of men left their homes and families in the east to travel across harsh and dry prairies to reach Boulder County’s foothills. They started prospecting for gold, often with few supplies and little knowledge of mining or survival in the Rocky Mountains. Placer miners panned for free gold in river and creek beds. Soon, quartz mines revealed their riches and many prospectors joined mining companies that could afford to open veins that were bedded deep in the hillsides. When a lucky prospector found a vein, he took a sample to the assayer to determine if it could be profitable to open the mine. Because of the immense capital investment necessary to open a mine, prospectors usually had two choices. He could either sell the claim to a mining company or try or start his own mining company in which promoters would be used to attract investors to the potentially productive claim. Once the claim had enough financial backing, mining engineers, possessing the necessary technical expertise, could develop the claim into a working mine, and miners would begin to drill, blast and muck in order to reach the golden ores.

Role of the Assay Office

Assay Offices, such as the Assay Office Museum also operated by Boulder County Parks and Open Space in Wall Street, play an important role in mining. Prospectors and miners take samples to the assayer to determine the value of the ore. Assayers used precise instruments and exact measures in their profession. Sylvia Pettem describes one method of assaying in her book *Red Rocks to Riches: Gold Mining in Boulder County, Then and Now.*

> One method of assaying both gold and silver is for the assayer to crush the ore in a small jaw crusher and pulverize the fragments to a fine powder with a rotating disk. An ounce of the powdered ore is mixed with a fluxing material to extract minerals such as copper and iron, and the mixture is heated in a clay crucible. Lead oxide, as a reducing agent, is introduced to the molten flux material to alloy with the gold and silver. The material is poured into a mold and a lead button collected. This button is placed in a small, porous vessel and put back into the furnace. The lead is oxidized and separated by absorption. The remaining gold and silver are weighed. Then the silver is dissolved leaving only the gold. Extremely sensitive scales are used which weigh even microscopic particles of gold. Estimates of the amount of gold or silver per ton are made from the results of the assay.

Once investors were found, the mine was opened, and the ore removed and milled. In the early years (1860s) the actual recovery of gold was generally only twenty percent of its assayed value due to inefficient methods of recovery in the mills. As technology improved and innovations such as the Gold Extraction Company's Electrolytic Chlorination process were tried, recovery of gold improved. The smelter was one innovation that helped re-enthuse the mining industry because of its improved recovery rate.

The assayer's office was filled with specialized equipment that attracted "high-graders," miners who had stolen ore while in the mines. Dishonest assayers would mill and smelt the high-grade ore for the thief. Ronald C. Brown, author of *Hard-Rock Miners: The Intermountain West, 1860-1920*, draws attention to an assaying firm "which proudly advertised, "Being supplied with the necessary apparatus, we are prepared to manufacture *natural nuggets* (of gold) to order on short notice."" With such blatant advertising for legally questionable services it is no wonder Brown states that "the honest assayer stood as a monument to virtue in camp society."

The Switzerland Trail of America

The Switzerland Trail wound its way up the steep and narrow canyons connecting mountain towns. The narrow gauge improved mine profits and eased the isolation of many of the mountain communities. In 1881 railroad fever ran high in Boulder, Colorado when the Union Pacific announced it would build a narrow gauge railroad up Boulder Canyon. The Greeley, Salt Lake & Pacific Company was incorporated in July of that year with plans to build the railroad up through Boulder and Four Mile canyons, over the Front Range, through Salt Lake and eventually to the Pacific. By November 1882 the railroad had reached Orodel and by April 1883 the first passenger trail ran to Sunset where the railroad reached the end of its line.

The railroad reduced shipping rates and the time it took to transport supplies. Mines that could not operate efficiently without the railroad began producing. The railroad also improved the supply of coal for the mills and the regular delivery of mail and food. Improved transportation changed the lives of mountain-dwellers as well by making trips into Boulder for business or pleasure an excursion that could be done in a day.

In the spring of 1894, the snows filled the canyons and warm weather and spring rains caused a torrential flood that wiped out the Greeley, Salt Lake & Pacific line. The railroad was not to be rebuilt. Compounding this blow was the Panic of 1893 and the demonetization of silver crushing Caribou's silver mining industry. The gold mines were quiet as well. When five Boulder citizens incorporated the Inter-Mountain Railroad Company in 1895 hope soared and gold mining picked-up. Unfortunately, work on the new railroad was never started. Then, in 1897, the Colorado & North Western Railway Company was started and eventually rebuilt up the canyons reaching Sunset and eventually Eldora.

The prospect of the success of the Wall Street Gold Extraction Company was a factor in the decision to extend the line to Eldora. The success of the new process could lead to a new boom in mining, benefiting the railroad dependent on mining and the tourist industry. The new railroad was the pride of Boulder and treated many people to scenic trips into the mountain. The financial Panic of 1907 caused the sale of the railroad in 1909. Soon the railroad began operating again under the name of Denver, Boulder & Western, serving the mountain communities and the excursionists.

The Switzerland Trail of America was named such because of the scenic trips it took its passengers on through the mountains. When the Stanley Steamer made its debut in 1897 it was an immediate success. In 1911 the first Stanley Steamer intended for scenic excursions took passengers up into the mountains adding competition to the ailing railroad. People still loved the railroad and efforts were made to keep it running. The end of World War I slowed and stopped tungsten mining in the region, hurting the railroads ability to stay afloat. By 1919 it was operating at a significant loss. In July a flood washed down the creeks and put an end to the famed Switzerland Trail of America.

How a Mill Works

The ore is taken to a mill where it is crushed and ground into powder. Crushing is done with steam-powered hammers (stamp mills), large steel rollers, or rotating steel balls. When the ore is powdered, the gold, silver, or tungsten can be separated out by a variety of techniques.

Since tungsten is usually found mixed with iron, large electromagnets are used to pull the iron out and leave the tungsten. Because gold is heavier than most metals, gold ore powder was often floated on water; the gold sank to the bottom of the tray and the rest could be flushed away.

The *ore* that miners removed from a mine was very heavy and only contained a small percentage of precious metal. Since transportation was expensive, miners wanted to remove as much of the valuable material from the ore as possible before transporting it to a *smelter*. The smelter would then process the ore further into pure metal. This process of separating the waste rock from the metal prior to smelting is called milling. Although not all mills were the same, the following is an outline of a basic mill process.

1. **Receiving Room** - Ore was received at the top of the mill building.
2. **Crushing** - The raw ore went through several crushers. The jaw crusher broke the rock into smaller pieces, and then the gyratory crusher turned the pieces into sand-sized particles.
3. **Grinding** - A hopper introduced the crushed material to a rod or ball mill along with water to form slurry. The mills were slowly turning cylinders with steel rods or balls inside. As the cylinders turned, the steel rods or balls collided and ground the ore even finer.
4. **Sorting** - The slurry was carried to a classifier to separate out the large pieces which were sent back to the grinder. The small pieces continued to the concentration process.
5. **Concentration** - Unlike the rest of the process, concentration was not linear, which is why it was on the lowest and largest floor.
    a. Slurry from the classifier was sent to flotation cells where agitators mixed in more water and various *reagents*. Agitation caused aeration, causing a froth to form at the top. The reagents caused certain metal ore particles to cling to the froth bubbles. By using different reagents, specific metal ores could be targeted.
    b. The froth was swept off the top of the cell by paddles into a *flume* while the heavier material settled to the bottom.
    c. The metal-containing froth was sent to a thickener and drier where it was rinsed, dried and packaged for shipment to the smelter.
    d. The heavier material might be sent to a second or even third set of flotation cells where the reagents were changed to remove a different metal ore. The material might also be sent to vibrating tables that separated the heavier metal ore particles from the lighter waste materials. The concentrated heavier metal ore was then sent to the thickener and drier prior to being sent to the smelter.
6. Depending on the metal ore being recovered, other steps such as *amalgamation* might be needed.

Once the ores were processed, they were shipped to the smelter for final processing into metal. Smelters made metal into the bars we have all seen in old photographs or in cartoons.

Synopsis

The mining camps of Boulder County fueled the growth of the cities and towns that cover the plains today. The search for gold enticed thousands of people to its foothills and mountain mining camps grew up in almost every wide spot in a canyon. Miners and their families worked hard under difficult conditions.

The mining camps grew and disappeared with the boom and bust cycles of the mining industry; communities were formed, and some remain today. Now, instead of the loud pulse of the mills and the explosions in

the mines, these communities are quiet enclaves of houses hiding behind pine trees in the canyons of Boulder County.

Boulder County pioneers came in search of gold. In the second half of the nineteenth century the northwest end of Colorado's Mineral Belt, stretching from Boulder County southwest to Telluride and Ouray, exploded with bustling mining camps. Optimism of fortune and a new start to life radiated from these camps and manifested itself in the capital invested in this area. Prospectors, promoters, investors, and miners excavated mines and participated in building mills, railroads, and communities.

Mountain communities, born as bonanzas, were founded and then faded as riches were hauled away. Most of the structures remaining from the mining days have seen the wear of harsh mountain winters and the test of time. In Wall Street, the assay office is a stout reminder of the optimism of the people involved in mining and offers today's visitors an opportunity to learn about the role of assay offices and the people involved in mining.

Uses for metals mined in Boulder County
Gold – precious metal for jewelry, coinage

Silver – precious metal used for jewelry, coinage

Iron – although present was not mined in Boulder County, used to make irons, steels and stainless steel

Copper – used as wire to transmit electricity, domestic water pipes, coinage, cooking pots, used to make brass and bronze alloys

Lead – batteries, weights, bullets, solder

Zinc – iron coating (galvanizing), used to make brass

Tungsten – light filaments, cutting tools for machining

Underground Mining Definitions

Adit – A horizontal or near horizontal tunnel entrance to a mine from the surface

Bed – A seam or horizontal vein of ore

Drift – A horizontal or near horizontal underground passage that follows a vein

Face – The surface on which mining operations are in progress

Gangue – The valueless rock or mineral aggregates in an ore, the part of an ore that is not economically desirable

Headframe – The structure erected over a shaft to support the cable and pulley system used for hoisting. It was often enclosed within a shaft house

Level – Work passages driven usually at evenly spaced vertical intervals

Lode – A vein containing any metal

Portal – The exterior opening to a horizontal mine level, drift, tunnel or working

Shaft - A vertical or steeply inclined opening extending downward from the surface to reach underground workings

Other Definitions

Assay – Process to determine the amount of an element (i.e. gold or silver) that is contained in an ore

Crushing – grinding ores without water

Grinder – Equipment for grinding the ore between rods or barrels

Ore - Metal bearing mineral or rock

Placer gold – Gold that is found in streams, eroded from the main vein

The Nederland Mining Museum Purpose

- The Nederland Mining Museum (NMM) is a Boulder County Parks & Open Space resource that will be a center or hub to teach the public about the county's mining history. Gold mining in Boulder County began in 1859 and continued until the Gold Mine Closing Order of 1942. The history of this district includes the rapid westward expansion of the United States due to the discovery of gold, the process of opening mines, from prospecting to assaying and milling. Mining in Boulder County was not limited to gold -- silver, tungsten and other minerals, as they were discovered, were mined as well. Mines, mills, and other sites/processes adapted and changed to fit the profitable "mineral of the moment"
- The NMM provides opportunities to interpret slices of various stories of mining in Boulder County, the equipment used in that mining, and what the lives and communities in which the miners resided were like
- To introduce visitors to Boulder County's mining districts
- To illustrate steps in mining and processing minerals
- To introduce the people who were involved in opening mines
- To depict mountain living and life in the mining communities

History of the Nederland Mining Museum Courtesy of Dale Porter

By the late 20th century, mining families in the Nederland area wanted a place in which to collect and exhibit artifacts from their storied past. Led by Parthena Evans and Binks Rugg, they began to identify and locate machines, tools, pictures, documents and ore samples that could form a museum collection. Par Evans secured a grant of $5,000 from the Territorial Daughters of Colorado, and Binks pledged his large collection of mining equipment. In 1997, Par Evans' daughter Kayla, collector/curator/repairman Dan Martin, Glenna Carline and Mike and Jeanette Smith, along with other Nederland Area Historical Society (NAHS) members, secured a major grant from the Colorado State Historical Society to form a museum. With this grant they leased the former county highway maintenance garage on the corner of Highway 72 and Bridge Street, in the heart of Nederland. Boulder County historian Sylvia Pettem researched and wrote the garage's history to secure its landmark status.

With the State Historical Society grant and help from the Peak-to-Peak Tourism and Recreation Program (TARP), NAHS volunteers replaced the damaged roof; cleaned the entire area; hauled away whole truckloads of trash; and brought in display cases, artifacts, mining equipment, and records. A splendid wooden tavern bar, once owned by the famous cowgirl (and Nederland café owner) Goldie Griffith Cameron, serves as the greeting and service counter. Volunteers also furnished the interior with wooden siding and metal corrugated roofing salvaged from a former gold mill near Leadville. The Nederland Mining Museum opened in 2003 and has operated every summer since then, staffed entirely by volunteers. It hosts hundreds of visitors from across the United States and Europe, as well as classes of schoolchildren and groups of history buffs.

The 40' x 60' "Stone Garage" that houses the museum sits on the original site of the town, namely the intersection of the main road from Ward to Blackhawk with a road to Caribou, and the crossing of Middle Boulder creek, part of Nathan Brown's 1871 U.S. agricultural patent. (Back then, the settlement was called "Brown's Crossing" or "Brownsville".) The Town of Nederland bought the site in 1879 and located City Hall there during its boom years of silver and tungsten mining. Then came the decline of mining and the Great Depression: the lot was sold to Boulder County in 1932.

It is often claimed that the Stone Garage was built in 1936 by the federal Works Progress Administration, a Depression-era jobs program. Actually, the WPA ran out of funds that year, so the Garage was built in 1937 with money from the County's "Special Road Fund". The design, resembling a Quonset hut, was based on earlier hand-built garages in Boulder and was unique to Boulder County. The stone came from an informal quarry at the west end of Eldora, on the road to Hessie townsite, where the rock was especially hard. Local men were hired to do the work. The garage was completed in November 1937 and used as a maintenance facility County highway maintenance facility. In 1978 the County leased the building to the Town of Nederland for continued use as a garage. In 1992, the Environmental Protection Agency ordered the removal and replacement of the dirt floor inside the building, which was contaminated with decades of motor oil and diesel fuel. After that, the garage fell into disuse and was boarded up, until the Nederland Area Historical Society rescued it for a new life as the Nederland Mining Museum. The Museum is now run by Boulder County as part of its county-wide mining heritage program.

A Brief History of Nederland courtesy of Dale Porter

Nederland sits in a long East-West valley amid the Front Range, or eastern face, of the Rocky Mountains. The area is grounded in granite, quartz and other hard rock laced with a variety of mineral ores. The ores that made its history were silver, gold, and tungsten.

Prior to 1859 the area was populated by Ute and Arapahoe Indians who camped in winter around the later site of Boulder. In 1859 prospectors associated with groups heading to California established a camp at Boulder and discovered gold where Gold Hill is now. Gold was also discovered at Ward, and soon a road was constructed from Ward to new mills and smelters in Blackhawk. This road ran through a "nondescript huddle of cabins" built along Middle Boulder creek, called Dayton, after one of the settlers, and then Brown's Crossing or Brownsville, after another settler, Nathan W. Brown. In 1869, silver was discovered at Caribou, 5 miles west of Brownsville, and by 1870 stagecoaches were bringing an estimated 1,000 people a day to the area. In 1871, Abel Breed bought the Caribou Mine and built a mill in Brownsville, now named Middle Boulder, for processing silver ore. That same year, the Boulder Canyon road was completed and Middle Boulder became a crossroads supply and milling center for Front Range mining.

In 1872, discoveries of gold and tellurium at Caribou launched a second gold rush. Abel Breed continued to develop the mines at Caribou, and in 1873 cast several pure silver bars that were placed as a walkway in front of the Teller House hotel in Black Hawk to mark a visit by President Grant. This publicity stunt, plus what was said to be a generous "salting" of the Caribou mine with piles of ore, attracted the attention of a group of Dutch investors. In 1873, the Mining Company Nederland bought the mine and mill for three million dollars, and the following year incorporated Middle Boulder, the mill town, as Nederland. There is a story that Caribou miners referred to the mill town, 2,000 feet down the mountain, as the "lowlands" or "netherlands," which gave the town its name. It was also reported that before the Dutch investors arrived to take over the Caribou mine, Abel Breed removed all the piles of ore and left the mine barren. In fact, the Caribou mine was one of the richest mines in Colorado. A careful historical account credits bad management and lack of knowledge by foreign and East-coast investors that led to the mine's demise. The Mining Company Nederland went bankrupt in 1876, and the mine and mill were sold at auction the following year. Yet it and other Caribou mines continued to operate and by 1910 were credited with having produced some $20 million worth of gold and silver. The town of Caribou, which at one time numbered about 3,000 residents, burned three times (1879, 1899, 1905) and by 1905 was mostly deserted. Meanwhile, Nederland also declined to a virtual ghost town, with only a handful of families living here year-round. Miners were discouraged not only by the loss of work but by epidemics of diphtheria and scarlet fever.

In 1883 a narrow-gauge railway was built from Boulder up through Four Mile Canyon to Sunset. In 1898, it was extended to the mining town of Ward, and a second extension in 1905 wound through what is now Caribou Ranch to New Cardinal, just west of Nederland. Although built to haul mining supplies and ore, the "Switzerland Trail of America" (as its promoters termed it) also catered to tourists, who often stopped to picnic and pick flowers. The line was also extended toward the small mining settlement of Eldora, just west of Nederland, where gold had just been discovered. This minor gold "boom" was virtually over by the time the railway reached the town, but for a few years the local economy revived. Eldora was originally called "Happy Valley", then "Eldorado," but when its U.S. mail started being delivered to Eldorado, California, the residents shortened its name.

It should be mentioned that many of the early miners were Cornish, recruited from the famous tin mines of Cornwall. They arrived in such numbers that mine owners could not keep track of them. When asked who a new man was, a Cornish miner would reply "Oh, that's my cousin Jack." So, they were all called "Cousin Jacks." Despite the town's name, almost no Dutch have settled here. Nederland does, however, host about 400 visitors from the Netherlands every year—they are curious to see their country's name in such a remote area—and so high up to boot!

In the meantime, former prospectors like Sam Conger (one of the first to discover silver at Caribou) realized the value of tungsten, an extremely hard metal with the highest melting point of any, that was beginning to be used for hardening steel and making armor (and constituting the filaments in Mr. Edison's new electric light bulb). Sam Conger knew that the Nederland valley was full of tungsten: it had been called "that damned black iron" by miners who tried to remove it in order to get at the gold, silver, and telluride they sought below. By 1904 the mill at Nederland was converted to handle tungsten and named the Wolf Tongue Mining Company. (The name is derived from tungsten and a variation, wolframite). Tungsten mining spread throughout the valley;—it was an ore that individuals or partners could exploit as well as larger companies—and the town grew accordingly. The town of Tungsten was established below Barker Dam with a thousand residents, a drugstore, and a bank. After 1910, the Germans began buying tungsten to stockpile war weapons, and at the outbreak of World War I the tungsten boom reached its peak. By 1916, Nederland was the tungsten capital of the world, with 22 mills in operation day and night and a growing population of 3,000. Newcomers shared beds in rotation at local hotels, and families camped beside Middle Boulder Creek. Restaurants limited diners to 20-minute meals.

In 1906, the Colorado Power Company started building Barker Dam to create a reservoir for drinking water and hydraulic power supply. Mrs. Hannah Barker refused to sell her large valley ranch, but it was seized by right of eminent domain and she was awarded $23,000 for the property. The dam was a major construction project that took about four years. Concrete had to be hauled up from Boulder on the Switzerland Trail railroad, whose tracks threatened to buckle under the weight. A special spur was built from Eldora down the valley to the dam site during construction; at very low water one can still see a shadow of the roadbed along the bed of the reservoir. The dam was finished in 1910. Through a large conduit snaking down the sides of Boulder Creek, the reservoir feeds electrical generating turbines near the foot of the canyon. The reservoir fills each spring with snowmelt, then shrinks during the winter. Visitors are warned not to try to swim in its frigid waters, which can induce shock and death within minutes. Likewise, there are few attempts at ice fishing because water continues to be drawn down after the ice forms, leaving a gap that sometimes reaches over 10 feet.

After 1900, the Stanley brothers began a tourist limousine service to Nederland in their new "Stanley Steamers." Other purveyors spread the popularity of tourism and summer recreation. People took a train from Denver to Boulder, a train or "steamer" up the canyon, and mule rides up to the glaciers and mountain meadows. Eldora became a summer tourist destination as well.

After the U.S. entered the war against Germany in 1917, it imposed a ban on tungsten exports to that country. Then the war ended, and demand fell. At the same time, Nederland was crippled by the 1918 influenza epidemic. The town once again dwindled to a few hundred residents. There were short-lived revivals of tungsten mining and milling during World War II and the Korean War, but the Wolf Tongue Mill shut down in 1972 and mining became part of Nederland's history. One

determined miner, Tom Hendricks, has continued exploring and drilling at New Cardinal and Caribou for years. Other old mine sites are scouted by individual prospectors.

Even during the heyday of mining, Nederland had attracted many visitors interested in its cool summer climate and access to mountain forests. Many local families, even if they moved elsewhere, maintained summer cabins in and around Nederland and Eldora. A new ski resort was started near Eldora in 1962, one of many that served Front Range skiers before the opening of the Eisenhower Tunnel (1979) brought competition from Aspen and Vail.

In the 1970s , Nederland became a haven adventurers passing through Boulder to the fringes of American society. These folks were not always welcomed by the established mining and ranching families, and there were public disputes and fights over contrasting life styles. Drugs were also prevalent, and the law was sometimes applied unevenly. Gradually, however, a measure of tolerance grew; some of the newcomers became carpenters and woodworkers, mechanics and businesspeople, and the miners also turned to other pursuits. Boulder Valley School District opened a new Middle/Senior High School in 1971. A new subdivision, Big Springs, was developed in the 1980s, along with the Caribou shopping center.

Since the 1980s, as Boulder County grew and attracted hi-tech companies and government research facilities, employees have found the Nederland area an attractive place to live, despite the curving and sometimes dangerous commute. The Caribou shopping center was developed in the early 1980s, as was a new subdivision, Big Springs, built along the south side of Barker Reservoir. Both prompted outcries from older residents, but soon became an integral part of town life. A new elementary school was built in 1989, and the old school was transformed into a multi-functional community center. Nederland today is partly a bedroom community trying to retain its historic character while serving a variety of new interests. Summer visitors and residents continued to flock to the area and Nederland has gradually rebuilt its economy because of outdoor recreation. After a decade of difficulties due to the opening of the Eisenhower Tunnel, the Eldora Ski Resort revived under new management, with new equipment and runs. It was, and remains, a popular day resort for the Denver area. Designation of the Indian Peaks and James Peak wilderness areas has opened the mountains to hikers, campers, snowshoers, and backcountry skiers. Rock climbers have made Boulder Canyon a top destination for many years. Community volunteer groups constructed both an ice-skating rink and a top-rated skateboard park. And in 2011, Scott Harrison opened his labor of love, the Carousel of Happiness,—an antique carousel, completely rehabilitated and furnished with a menagerie of hand-carved animals.

Nederland today is a home-rule municipality governed by an all-volunteer board of trustees and mayor. They are supported by a town hall and public works staff, a town marshal and deputies, and a variety of citizen-participant advisory boards. Community events and history are chronicled by the 30-year old “Mountain-Ear” newspaper.

Chronological History of Nederland

1820 Botanist Edwin James explores area
1833 Sam Conger leaves home to make his way in the world at age 7
1850 Nederland called Dayton with just a few cabins. Nathan Brown arrives, builds Brown Mountain House, called Brownsville
1860-
1870 Many ranchers and farmers arrive in area
1865 Boulder Canyon Road started, goes to Magnolia Hill and then to South Boulder Creek and to the road that went from Blackhawk to Estes Park
1868 Sam Conger discovers silver at Caribou, 10 years before Leadville. This led to Colorado's nickname, the Silver State
1870 Tucker Ranch began, later called Caribou Ranch
1871 Boulder Canyon Wagon Road completed to Nederland. A post office is established and the town named Middle Boulder County
1872 The first school was built taught by B.T. Napier
1873 Caribou Mine was sold to the mining company Nederland of Holland for $3 million
1875 Town of Nederland incorporated. Dutch miners lived in Middle Creek and called it Nederland, meaning low land
1876 Mines collapsed financially
1883 The Switzerland Trail of America train established as the Greeley, Salt Lake and Pacific Railroad. The route went up Fourmile Canyon as far as Sunset
1887 The Nederland population boomed to 200 thanks to a gold strike in Eldora
1889 7 families live in Nederland and it still had a school
1894 Railroad flooded out
1898 The population of Nederland is 500. Sam Conger discovers tungsten in Caribou. The railroad was rebuilt by Colorado and Northwestern and extended to Ward
1904 Wolf-Tongue Mining established. Caribou Mill converted to processing tungsten. That company name was a combination of "wolframite" and "tungsten." The railroad extended to Eldora for gold mining, but it was too late
1907 2 room schoolhouses built
1907-
1910 Barker Dam built
1910 The new schoolhouse burned down. The Stanley Steamer arrives up Boulder Canyon Wagon Road
1911 New 4 room schoolhouse opens
1912 The tungsten boom takes the population of Nederland to 3,000 and an additional 2,000 live in the surrounding area. The Nederland Community Presbyterian Church established
1915 The Nederland Community Presbyterian Church building opens. Tungsten booming for the World War I effort
1916 The school adds on; it's now a 6-room building
1919 The railroad stops running; automobiles are now the mode of transportation
1921 The first high school is established. The tungsten mines close
1922 Wolf-Tongue is back in business
1925 Sam Conger dies in Denver
1935 St. Rita's Catholic Church opens; it's first building is a log cabin
1936 The school expands with the help of the WPA

1938 Arabian horses are brought and raised at what's now the Lazy VV Ranch by Lynn Van Vleet. The tungsten mines re-open for World War II
1944 Tungsten mines close for good
1971 James W. Guercio puts in the Caribou Recording Studio. The junior-senior high school opens
1988 A new elementary school is built

Nederland Mining museum – FAQs

1. When and where was gold first discovered in Colorado? In Boulder County? Gold was first discovered in 1857 along the South Platte River about 5 miles above Cherry Creek. In January 1859 gold was discovered in Gold Run Creek, south of the community of Gold Hill.

2. What types of ore were mined here? The main ores mined in Boulder County were gold, silver, and tungsten.

3. What is tungsten used for? Tungsten has a chemical property of strengthening or alloying steel when heated. It was extremely useful to armor tools and equipment, especially during World War I. Tungsten was later used in light bulbs, , high speed cutting tools, as well as rocket engine nozzles.

4. Where was the town of Caribou? Tungsten? Caribou was located due west of present-day Nederland at 10,000 feet. You can still drive to the old town site, but the town itself burned down twice and little of it remains. The town of Tungsten, Colorado was located where Barker Dam is now. At the height of the boom, there were up to 3000 people living there.

5. How did Nederland get its name? Nederland is the Dutch word for Netherlands, or lowlands. At the time the Caribou silver mines were operating, the ore was milled in what is

now Nederland, or at a much lower elevation. Dutch investors in the mines gave it the name of Nederland.

6. What is the Switzerland Trail? The Switzerland Trail was a narrow-gauge railroad built in the 1880s to transport mining supplies from Boulder up into the foothills. Its original terminus was Sunset up past Wall Street. Later it was extended to Ward and eventually Eldora. The railroad was turned into a tourist train in the early 1900s for wildflower excursions until a flood wiped it out in 1919.

7. When was the Boulder Canyon Road constructed? The Boulder Canyon Wagon Road was completed in 1871. It was a one-lane road that crisscrossed Boulder Creek 33 times. It wasn't until 1955 that the road was widened and straightened to become the road it is today.

8. Whose bar was this? Who was Goldie? The bar belonged to Goldie Cameron, a performer in Buffalo Bill's Wild West Show. The bar was in the business she ran in Nederland. Here is a 2015 article with more information about Goldie https://denver.cbslocal.com/2015/12/11/famous-cowgirls-wedding-dress-to-go-on-display-at-history-colorado-center/

9. How do pumper cars work? Four workers sit on the cars, two on each side and push with their feet at the same time they pull with their arms. This moves the car down the tracks. Pumper cars were used to transport miners in and out of horizontal mine shafts.

10. What is milling? Milling is the process in hard rock mining of turning rock into concentrate. Mills, like the stamp mill in the museum, pound the rock over and over until it becomes a fine powder or concentrate. Chemicals (or magnets in the case of tungsten) then separate the valuable minerals (like gold or silver) from the rest of the rock.

11. What is placer mining (or gold panning)? Placer mining, or gold panning, is a collection of **mining** methods that use water to separate valuable ore from the surrounding sediment. Because gold is heavier than other minerals, gold deposits normally sink to the bottom of the pan.

12. Which is heavier, gold or silver? Gold is heavier or denser than silver.

13. When was this building built? What was its purpose? It was built in 1937 as the Boulder County Maintenance Facility/Garage, thus the garage door. Road maintenance equipment was stored here.

14. What is assaying? Assaying is the process of determining how much ore is worth. The ore was melted down and chemicals, like nitric acid, were used to determine the proportions of metal in a sample of ore, thus determining its overall value.

Standard Opening/Closing Procedures: Nederland Mining Museum

Please arrive 15 to 20 minutes before opening time. Volunteers may occasionally be asked and are allowed to—depending on their comfort level—to open and/or close the museum and staff the museum when Boulder County staff is not on site. Though at least 2 people, made up of staff and volunteers, are ideal for staffing many of our Cultural History sites/museums, sometimes it may be necessary for just one staffer/volunteer to staff sites alone.

Opening Procedures

- ☐ Turn on ceiling and exhibit case lights.
- ☐ Reset both door counters to zero—only if you have instructions to do this. Otherwise, find clicker counter behind bar and use that to get a daily count of visitors. Send count to NMM or Cultural History Program Coordinator at end of day or next day.
- ☐ Unlock front and side door.
- ☐ Put out both OPEN signs, American flag and Hessie Shuttle sign (Sat and Sun). One open sign goes in front of museum, as does the Hessie sign. The other sign goes near the back of the museum along the south side where cars would drive toward the NMM parking lot.
- ☐ Date the guestbook and make sure a pen is out.
- ☐ Turn thermostat up to 65 degrees, if needed.
- ☐ Boot up PC and launch Mining Museum Hall of Fame Power Point (user name: mining password: Nederland1)—not in use due to COVID summer 2021.
- ☐ Water potted flowers in front of the museum (Friday and Sunday). Turn on the spigot shut off valve—inside the brown wooden box on the wall behind Goldie's bar—and turn it off when you are done.
- ☐ Restock cups on H20 dispenser (extra cups upstairs) and brochures on Assay Cabinet (container of brochures are in Goldie's bar).
- ☐ When slow:
    - Dust bar, glass case tops, Assay Cabinet, and flat surface of wood handcarts with clean microfiber cloths.
    - Dust artifacts and equipment with Swiffer—changing head when dirty.
    - Check restroom for cleanliness and restock supplies, if needed

Closing Procedures

- ☐ Lock both doors.
- ☐ Straighten children's area and hands-on table.
- ☐ Turn off the ceiling and exhibit case lights.
- ☐ Check the bathroom, tidy if needed, and empty trash into large trash bin outside.

- ☐ Empty all trashcans into large trash bin outside.
- ☐ Bring in OPEN signs, American flag, and Hessie shuttle sign (Sat and Sun)
- ☐ Take donation spittoon upstairs, count $, and give to staff member. Return spittoon to table. If no staff member is present, place money in top right drawer of desk upstairs for staff to put in safe later.

General Daily Museum Guide Duties

- Greet visitors as they enter the museum. SMILE! Be friendly and courteous
- Encourage visitors to sign the Guest Book; ask where they are from
- Record the number of visitors by tallying visitors when they enter
- Answer questions about mining history, the community, and museum exhibit items/equipment as you are able. If you cannot answer a question, see if another volunteer or staffer can. It's fine to say "I don't know" rather than give incorrect information
- Visitor and artifact safety are vital. Do not let visitors sit or lean on artifacts
- Show or call attention to interesting exhibits or artifacts. Ask questions to determine what aspects of mining visitors find interesting

Daily Talk Outline/Guide

Each day the museum is open, generally around 2pm (depending on visitation and COVID-19 concerns) a short talk is offered to visitors who'd like to gather around and listen.

Universal Concepts: Hardship, suffering, fortune, joy, community

Theme Statement: The story of mining in Boulder County is the story of a small county in Colorado that had a global impact, as mining became the leading industry during the late 19th and early 20th century.

Props: gold pan, mineral belt map, hand drill, double jack hammer, Lakewood mill picture, silver ore rock sample, tungsten sample, bottle of concentrate, ore ball and picture, BCPOS map

Goals of talk:

1. Visitors will understand the suffering, joys, and fortunes that the mining industry brought to Boulder County.
2. Visitors will understand the processes involved in hard rock mining from prospecting to milling.
3. Visitors will understand how mining helped develop this area and laid the infrastructure that led to tourism in the area.

Program Outline:
Introduction: talk about what leads people to visit Colorado – dramatic mountains, and how these very mountains contained fortunes for people 150 years ago.

1) Discuss the minerals and ores found in the Rocky Mountains.
2) Detail differences between placer mining (panning for gold) and hard rock mining. (Show samples – gold pans, ore samples with veins)
    a) Show differences between hand drills (use props – hand drills, single jack) and pneumatic drills
    b) Detail the hardships miners went through, extracting ore via ore cars and ore buckets.
3) Explain assaying process (use props) – how a miner knows whether he had struck it rich

Transition: But to extract the valuable gold or silver from the rock, it was necessary to crush it into a fine concentrate (prop – vial of concentrate).

Milling

1) Give demonstration of mills – showing them tungsten mill that used magnets to extract ore, demonstrating stamp mill and how it worked to crush the ore.
    a) Show them mill site map.
    b) Boom of tungsten, and how it affected Nederland as a town.
2) Detail end of mining boom –

Transition: What happened to these towns that developed around the mining booms?

Conclusion: The very infrastructure that was built to support the mining heyday now provides access for people to enjoy the mining towns and open spaces for recreation and restoration of their spirits (use Gold Hill, Nederland, Switzerland trail as examples).

Nederland Mining Museum School/Youth Program Outline

- There will be three stations for students to visit as well as a group introduction and conclusion. Groups will be asked to divide into three groups before and, again, as they arrive
- The museum can accommodate one class (about 30 students along with parents and teachers) at a time.
- If two classes visit, one class visits NMM doing the activities below and the other visits Mud Lake doing a teacher/parent led hike or doing a historic walking tour around town or another activity led/arranged by their teacher
- When the NMM visit concludes, all groups convene at Mud Lake (or another site arranged by their teachers) for lunch, then the groups switch: the hiking/walking group from earlier visits NMM and the NMM group goes on their hike/walk.
- If one class visits, they are through with their experience after the NMM visit, but can be provided with historic walking tour/Mud Lake hike info if their teachers/parents wish to continue the day and lead that on their own
- One of us will need to keep time for the field trip: do we want to use a timer or phone to do that? When the time for each station rotation is done (ideally a bit less than 20 minutes,

ideally, but that depends on what time the group arrives and what time they need to leave), the timing volunteer/staffer will ring the hoist signal bell to let groups know it is time to move stations.

Group Introduction (staff led station) 5 minutes + -

Assemble the entire group; get everyone's attention.
Introduce the volunteers/staff members that will accompany the students on their visit. To make things more official, we might give the students the role of geologists/miners/explorers for the visit and call them whichever name we choose as a group as they visit the museum.
Ask teachers/parents to raise their hands and let them know they will be called on to lead a station (the rock station if there's not a volunteer/staffer to do so) and will that they will assist in moving students from station to station.

- Tell everyone: Use quiet voices
- Do not touch anything unless you are told that it's OK to do so. There are lots of old fragile, sharp tools here. They can hurt us, and we can damage them.
- Stay together with your group. No running or sudden movements. Be careful of yourself and your friends.
- There are three stations to visit; each group will visit them all. A bell will ring when it's time to move to the next station. Demonstrate what that bell will sound like—ring the hoist bell.

Placer vs. Hard Rock Mining; what was mined here

Gather artifacts before to use as props: gold pan, drill bit, hammer, dynamite stick, etc.

What was mined in the area: gold, silver, tungsten, coal, sandstone (hold up samples if they are nearby; have students guess which is which if there is time).

Placer vs hard rock mining: gold panning ("mining in place" where the word placer came from) vs. going underground to mine.
Hard rock mining is about making the rock as small as possible.

Drill holes to make dynamite holes. Blasting made the rock break into smaller pieces.

Send rock to a mill: make even smaller, combine with chemicals to get valuable minerals

Smelter: make into bars

- Show tools used for both; ask students if tools look familiar and what they were used for
- Have students help you act out gold panning and single jacking/double jacking

Miners visited the assay office with rock samples to find out what it was worth and if they should keep mining there.

Station 1 – Rock/Mineral Activity (teacher/parent led station) 15 minutes + -

Teachers will be told ahead of time that they and/or parents will need to lead a station. Directions will be emailed. These directions also need to be enlarged, printed and laminated, and stored with the rock activity

Materials:

- Minerals: Most of these are taken from the hands-on table at NMM, but some are in a tub upstairs in the office cubbies. In photos it is hard to see the veins of minerals (they will be shiny areas, almost specks in some cases); they can be more easily spotted and pointed out on the actual rock.

gold ore pyrite silver tungsten molybdenum rhodochrosite

- Magnifying glasses
- Food scale(s)
- Optional pencils and worksheet or laminated worksheets for discussion: "I wonder, it reminds me of, I think that…"

- In case of leftover time, we'll try to have some sheets like this for the students to pass around and look at more closely

Directions:

- Break students into pairs or groups of 2-3
- Explain to the students:

Assaying was very important in mining. Combining ore or rock samples that miners took out of the mountains with certain chemicals separated out the valuable minerals. That helped the assayer determine the value of the ore. What the assayer said could make or break a miner and let him know if he'd become rich or not. Today you will look at ore samples to learn about them; you will be an assayer

- Each pair of students has a different ore/rock sample to work with in front of them
- Have each pair of students observe/examine their rock
- Ask them to describes the rock. You can use the areas on the worksheet as a guide. Lead them through observing and writing about each area by doing a rock yourself (the pyrite/fool's gold works well for this. It is so sparkly; all the groups want to use it and fight

over it). Discuss quickly what's below about the pyrite. Then ask the groups to be ready to do the same with their rocks.

I notice… "it's sparkly," or
"it has crystals," or
"it is heavy."

I wonder… "if it is worth a lot of money," or
" where you can find it," or
"what it is used for?"

It reminds me of… have they seen something like it in their yard, at their school, on a hike?

- Then—putting all those together,

I think that it is _____ (each pair will guess what kind of mineral the rock is)

- Then ask each pair to take turns sharing with the group the information they gathered about their rock sample and what mineral they think it is.
- Please do not immediately tell students the name of each mineral. The labels and photos below are so you can lead them to a correct name for the minerals.

gold ore,

pyrite (fool's gold),

tungsten,

molybdenum,

rhodochrosite

silver,

Why are there price tags on the rocks?

Students might notice that there are labels that look like price tags on the rocks. These are called accession numbers and they help museum staff keep track of artifacts—things now in the museum that people made or used many years ago

- The first number tells what year the artifact was given to the museum, the second number tells which donation during that year that artifact was in, and the third number tells which item in that donation the artifact is
- So, if the number was

  2019.08.02

  That means that artifact was given to the museum in the year 2019. It was the 8th donation of the year. It was the 2nd artifact to be donated in that same donation, by that same person
- We use a computer program called Past Perfect to keep track of the artifacts in our museum collection

Mineral Activity Worksheet

Observations I notice……	**Observations** I wonder….
Connections It reminds me of….	**Explanation with Evidence** I think that….

Station 2 – Gold Panning (volunteer/staff led station) 15 minutes + -

- Demonstrate how miners used to "pan for gold" or placer mine.
- Then distribute gold pans so all students can have a chance to "strike it rich."
- Encourage them while they are working to look for gold or other minerals that "strike their fancy."
- Each student can take up to three samples home in a bag/vial.

Station 3 – Museum Tour (volunteer/staff led station) 15 minutes + -

Think about which artifacts visitors are most interested in and which tell the story best of hard rock mining and/or that reinforce what was discussed in the Introduction. Try to show and tell about those, quickly and interactively, to each group

Below is an example of what might be shown to students during this station. Please make the mini tour your own. We each have our own style that can capture visitors' attention

It can work well to start this group near Goldie's Bar and then go in a kind of circle toward the front of the museum, past the drills and toward the hoist. Below is a suggested route of artifacts to discuss briefly and point out but this tour could discuss any artifacts and move any way around the museum, just so it doesn't run into the other group stations

- For example, you might talk about Goldie's bar and how mining towns were busy places that, as they grew, had stores, restaurants, schools, and other businesses, like towns do today and that the bar came from a bar in Nederland where miners might have gone after a hard day working.

- The assay cabinet by the museum's front door can be discussed: ask the group to remember how when we started the day at the museum, we talked about assaying as a way

to find out how much miners might make from their ore. This cupboard is where the assayer would store that ore in the assay office while they were examining it and before the miner would come back in and learn how rich he was going to be—or not. The cabinet has hidden areas behind the front, display cupboards. Assayers would keep the shiniest looking rocks in the front to show what a successful assay office they had.

- Stopping by the mine diorama next to the door might be a good idea. This is what a mine looked like. What would it be like to be one of the miners underground?
- You might pass by the area about lighting in the mines next and talk about how dark it was underground and how light to work by in the mines changed with new technology. Have them find the earliest lights (candlestick holders) to the most advanced (battery powered)

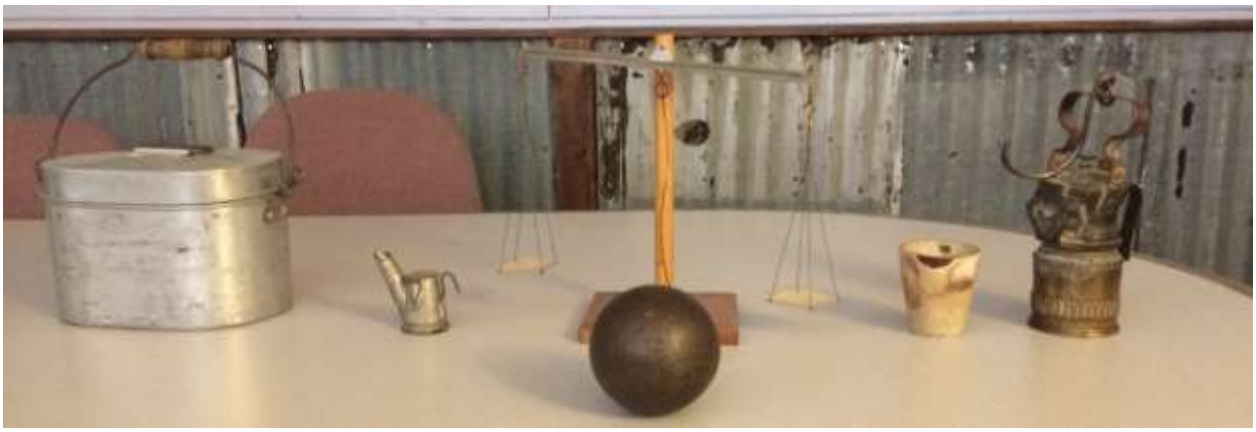
- Some groups notice the pumper car—something they've seen in cartoons. That could be discussed as a mode of travel in the mines
- Perhaps visit the middle area of the museum next. If you are comfortable with it, demonstrate the stamp mill and talk again about how making the ore/rock as small as possible was what was needed to then get it to the smelter and make it into bars of gold, etc. (There is a smelter bar mold to show that kind of looks like a very heavy pan you would use to bake banana bread.)
- Usually students see the mill balls and ask about them. "Are these cannon balls?" Again, talking about making the ore as small as possible is done here. Balls were put in what was kind of like a big clothes dryer, then the rock/ore was added. The ball mill turned around and around and the balls crunched together and crushed up that rock. Show how the balls got smaller over time because they wore down

- Stop at the mechanical drills. Ask students to remember single and double jacking that was discussed at the start of the

visit. Doing that by hand was hard, physical, wearing work. As technology improved and new inventions came, drills became mechanical. It didn't have to be done by hand anymore. Miners could use these drills to go deeper into the rock, much faster. This was unhealthy, though, and kicked up a lot of dust that made miners sick with a lung disease called silicosis. These drills were called widow makers because so many miners died and left their wives alone as widows. An invention came to help with this: a drill bit with a hole that water passed through. The water wetted down the dust, so miners didn't breathe it in.

- You might have time to stop at the hoist to talk about the signal bell sign and how that would tell the hoist man above ground what the miners underground needed. The hoist man was very important; the miners' lives were in his hands. Him hearing the bell signals and knowing what they meant and sending the man cage or bucket (the elevator that the miners rode in and out of the mine in) up or down to the right levels got everyone where they needed to be safely.

If somehow space and/or time for the tour are short, you could, instead, feature the hands-on/guessing artifacts on the bar and discuss those, perhaps, as a guessing game with students



Lunch pail | early miner's lamp | scale | mill ball | crucible | carbide miner's lamp

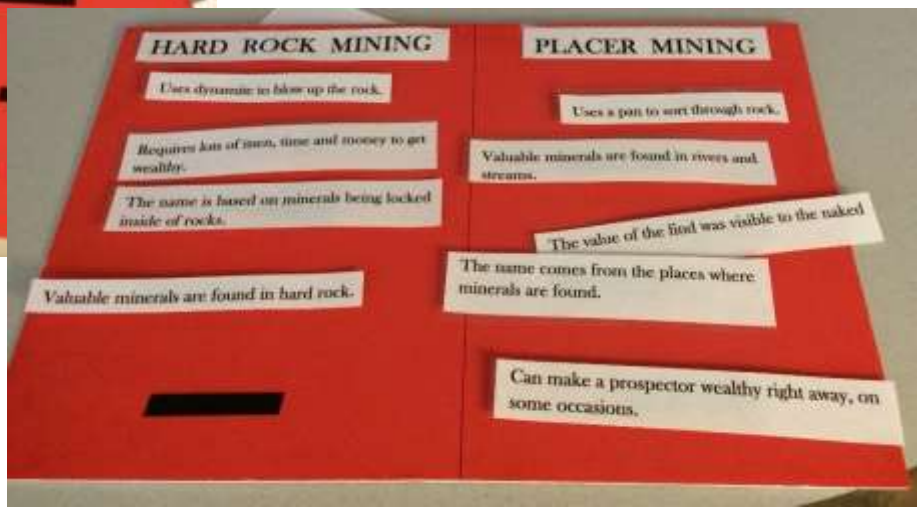
Group Conclusion – Staff led (5 minutes + -)

After the three groups have been to each station or it is about 5 minutes before the group needs to leave, gather the group together.

Thank the group for visiting. Tell them we're going to take a quiz about what we know about mining: are we experts?

Use the Placer vs. Hard Rock Mining board for this and do it orally with the group. You might have them vote on the "right" answers with a show of hands rather than calling on students to say answers, depending on available time and the group's demeanor.

When done, they are official "miners" or mining experts and are free to leave according to their teacher's directions.



Background Information on Wall Street & the Assay Office Museum

The Assay Office Museum Purpose

- To introduce visitors to Boulder County's mining districts
- To illustrate one of the steps in opening a mine, emphasizing assaying
- To introduce the people who were involved in opening mines
- To depict mountain living and life in the mining communities

Boulder County's population boomed in the late 1850s due to the discovery of gold in the Rocky Mountain foothills. The town of Wall Street is located four miles up Four Mile Canyon. It served as the entrance to Boulder County's mining district and an introduction to mining.

Role of the Assay Office
The Wall Street Assay Office (WSAO) represents a specific step in the mining process. Prospectors, after finding a promising mining site, needed to get their gold samples assayed to find out if their site was worth the effort to start a mining operation. The WSAO will depict this step in the mining process. Here visitors can be guided to other sites that best depict other steps in mining.

- Mining history of Boulder County
- Entrance to mining district
- Discovery of gold
- Driving force in settlement of Boulder County
- Bonanza of mining towns
- Mining communities and families –like the Baileys
- People involved in mining –prospector, promoter, assayer¸ investor, miner, manager, mining engineer
- Illustrating steps in mining –prospecting, assaying, mining, milling, smelter, railroad
- Celebrating the preservation of mining history

Wall Street Assay Office

The Wall Street Assay Office has gone through many incarnations since it was built. Its enduring stone walls initially housed the assay office. After the Gold Extraction Company closed, the mill and assay office were sold at a sheriff's sale in 1907. James E. Bailey, Caryl's general manager for the Wood Mountain and Nancy mines, bought the assay office and used the upstairs west room for his office and living quarters. His brother, the assayer for the Gold Extraction Mill before it closed, used the lower floor for his assay office, and the upstairs east room was used for a pool hall. In 1928 James E. Bailey died in an accident in the Good Morning mine and his family, who had been living in Denver, moved into the assay office. Two generations of Bailey called the assay office home, helping to preserve Wall Street's history.

Orientation to the Assay Office Museum and Wall Street Community

<u>Wall Street History</u>

Joseph Edward 'Ned' Collie, born in Wall Street in 1879, wrote about the mining camp established in Boulder County's foothills in his manuscript, "The Mystery of the Metallurgical Pit."

> The little stream that takes off from Boulder Creek four miles from the mouth of the canyon continues on up about five miles, when its semi canyon spreads out both

sidewise and endwise, forming a natural invitation for a town site if there is any need for one.

The mining camp, located in a wide area in Four Mile Canyon, had its beginnings with the arrival of Gardner P. Wood around 1866 at which time the vicinity was known as Sugar Loaf after the prominent mountain in the area of that name. As the years went by, two separate communities grew, one at the base of Sugar Loaf Mountain and one at the top.In 1891, a disagreement began over where the post office would be located. During this four year dispute, the mountaintop settlement was known as South Sugar Loaf, and the base camp remained known as Sugar Loaf.

Finally, in the winter of 1895, two post offices were operating, and boarding housekeeper Mary Collie convinced her neighbors to change their town's name to Delphi. This name wouldn't last for long.

Charles W. Caryl appeared in Boulder County in the spring of 1897. "Caryl was outfitted splendidly always, had a fine carriage, and a set of blonde whiskers that were the envy of men everywhere and the admiration of at least the woman who stalked him." A photo of Caryl and an article about him can be found at https://www.historycolorado.org/sites/default/files/media/document/2018/ColoradoMagazine_v51n1_Winter1974.pdf

Caryl worked quickly, quietly, and Boulder County could only guess what he was up to. A newspaper reported: "What does it mean? A man named Caryl has bought the Collie place on Four Mile Creek and has fixed it up nicely. He has, so it is said, purchased and paid cash for some 40 mines and prospects on the other side of the creek… The neighborhood is to be known as Wall Street… The affair looks like a gigantic one. Mr. Caryl says very little, keeps his own counsel, and pays as he goes along. There is no telling what may be developed up there."

Caryl quickly established the Wall Street Townsite Company, the Nancy Gold Mining and Milling Company, the Wall Street Tunnel Company, and the Gold Extraction Mining and Supply Company. The town was platted under the name of Harry S. Badger, the superintendent of the mining and supply company.

From the spring of 1897 until the summer of 1899 Caryl's companies enlarged Mary Collie's boarding house creating the Wall Street Hotel and built both the Wall Street Mercantile and the Assay Office plus various cabins and storage buildings. On the 1899 Tax Roll, President Caryl of the Gold Extraction Mining and Supply Company owned all six blocks of Wall Street, 9 structures, and 23 mines for a total taxable value of 6,500 dollars.

Charles Caryl had a vision and must have been a charismatic speaker for he was able to convince many people (mostly New Yorkers) to invest in his grand plans.But his dream began to unravel in August of 1899 when Mrs. Mary Williams, a wealthy 70 year old widow, filed a law suit saying she had been swindled out of $130,000. Mrs. Williams died the following month. Caryl settled the suit out of court with the Williams' family heir in June of 1900 by giving them numerous mines and all the Wall Street Townsite west of Third Street, which included the land on which the Assay Office sat.

In March of 1900, the papers had reported that Charles Caryl was planning to build a 100,000 dollar mill at Wall Street, but his finances and plans were unraveling rapidly. By the end of 1902 Caryl had

sold or lost most of his Wall Street property. A new Boston-based organization, The Wall Street Gold Extraction Company, bought from the William's estate, Caryl's Assay Office, the lots to the west, and the land marked "Reserved." It took them 22 months (March 1901-December 1902) to build their enormous mill on the land, and for a time Wall Street was the center of attention in the Boulder County mining districts. "Some [tourists saw] the mill illuminated at night by its hundreds of electric lights, providing such a beautiful evidence of new life and vigor to this section."

The $150,000 mill, a failure, was sold at a bankruptcy sale on April 30, 1907, and was dismantled for lumber and machinery used primarily in the U.S. Gold Corporation Mill on Sugar Loaf. It was from this company that the Bailey Family acquired the Assay Office in 1909.

Even though Caryl's grand plan never came to be, and even though the Wall Street Gold Extraction Company Mill failed, many mines in the Wall Street area were successfully operated from the 1860's until the Gold Mine Closing Order (L-208) of 1942.

The Assay Office is the only structure in Boulder County built by Caryl, and the only building associated with the Wall Street Gold Extraction Company Mill, which has survived intact and virtually unchanged.

Charles W. Caryl

Charles W. Caryl arrived in Denver around 1893 and in late 1897 published his book entitled, "New Era," in which he revealed his plans to create a utopian settlement. In Chapter One, "Wall Street Gold Mining Camp, Up In The Rocky Mountains, Boulder County, Colorado," he wrote: "If the miners who owned and knew how to operate the mines to the best advantage would show their faith in them by putting their mines and labor up as a basis for securing capital, and would guarantee 6%interest on the capital necessary before the miners received anything more than necessary expenses," then the capitalists would feel safe to invest.

The workers in this organization were to be organized into seven degrees of membership and would be paid for 8-hours work as follows: First :common crude labor of all kinds, $2/day; Second: more useful labor of all kinds; $3/day. The highest level the most valuable services of all, executive officers, $25/day. To many struggling local miners (whose labor would put them in the first or second degree) and wealthy New York investors who hoped to share the "many millions of dollars," Caryl's plan sounded like a winning situation, and development began to happen at a feverish pace.

On the next to last page of his book he wrote: "The property of the Gold Extraction Mining and Supply Company consists of over one hundred claims… the old Colley [sic] place… on which a comfortable two-story house that has been renovated inside and out and occupied as an office and boarding house… Ground has also been broken for a store, assay office and boarding house for the miners. "

Caryl changed the name of the mining camp from Delphi to Wall Street, had the town platted in the name of Harry S. Badger, his superintendent of The Gold Extraction Mining and Supply Company, and captured the attention of working men and investors alike. But his scheme began to fail with the suit of Mary J. Williams in August 1899, and he was gone, but not forgotten, by the time the Wall Street Gold Extraction Company Mill was competed in 1902. Much of the impetus for the creation of such a grand mill came from the enthusiasm and vision of Charles Caryl. For a short time, Caryl had a profound influence upon the mining families' lives in Wall Street and no doubt his failure caused some Boulder County investors to be more cautious.

In January 1903 the Denver and Boulder papers wrote that "Charles W. Caryl, the 'Father of Wall Street,' has broken out afresh. He now calls himself Vril Enacting Trustee…. He explains that [Vril] is a mysterious power… and invites his victim to send him $100 to become a stockholder. The U.S. mails are used for the circulars of this latest get rich quick scheme of the erratic by oleaginous Mr. Caryl who would make everybody "Vril disciples of Jesus of Christ' for business purposes – for Caryl purposes. This fellow should be locked up." When the scheme didn't meet with success in Colorado, he moved on the California where the reporters tried to determine whether Vril was "something to eat, drink, or wear." They decided it was mostly something to swear at.

Caryl would go on to create the "Brotherhood of Light" in 1905, which the papers would describe as "a sort of orphanage establishment or something akin to a salvation army plant, a sort of cross between an institution for the feeble minded and a bad case of delirium tremens." By February 1912, the Brotherhood supposedly had 10,000 followers who were trying to work out the problem of a higher civilization through the perfection of the sexes, while their leader sat in a Denver jail cell accused of "sending obscene matter through the mails." Once again, by the time the case came to court his accuser had died. Caryl pled guilty and paid a fine and costs of $500. A year later, Caryl was asked to speak at a Boulder County Metal Mining Associations meeting to discuss the new scientific method of extracting ore values. The Camera wasn't so accepting of his opinion and encouraged its readers to remember his past.

The Assay Office is the only known Boulder County building identified with Charles W. Caryl –a visionary, con artist, promoter, or a combination thereof –who left a permanent mark on the history of Wall Street, Colorado.

Gold Extraction Mill

In Wall Street, cabins and houses are almost hidden among the pines and clustered in areas that were once booming mining camps. Wall Street is an idyllic mountain community with the imposing structure of the mill's stone cooling-pit standing guard. Most of the buildings from the mining days are lost although some may remain as part of a house or cabin. The assay office is one building that retains almost all its character from the mining days due to the care of the Bailey family.

The Gold Extraction Mill was completed in 1902. Stoneworkers from England used rock hauled from Gunnison to build the assay office and mill. The mill was unique in its recovery of ore because it followed the practice of sorting, crushing, and roasting the ore delivered to the mill. After the ore

was processed, it was dropped into the cylindrical pit, where it cooled, and air and chlorine gas were introduced to further digest the ore. From there the gold bearing "leach liquor" was pumped into another room where an electrolysis process separated the gold. The enormous mill had a crushing capacity of about 200 tons per day.

Joseph Edward 'Ned' Collie was born in Wall Street and returned in 1903 to work as an assayer. He recalls the processes as a terrific failure. Separating the gold turned out to be more difficult on a large scale. "The company tried to but in short time it became plain that there was no one on the job who was able to make the clean-up of the mess in pit …" The superintendent of the mine asked the assayers to make gold coins that he brought to the New England headquarters to show stockholders. With this proof of 'success' he asked for more money with which he returned to Wall Street, paid the workers, and closed the mining enterprise. The mill was sold at a sheriff's sale in 1907, the machinery was dismantled and shipped to Sugar Loaf where it processed ore until World War I when it was sold as scrap. Only the stone pit and assay office remain as proof of Charles Caryl's vision.

The Bailey Family

After James E. Bailey was discharged from the Spanish American War on April 28, 1898, he made his way back home to Vincennes, Indiana by way of Colorado where he met up with Charles W. Caryl, an oil promoter. Bailey was intrigued by Caryl's plan. At first, he worked as a manager of the Nancy mine for Caryl, and soon his brother, Thomas S. Bailey, joined him as the assayer for the Wall Street Gold Extraction Company mill.

For years, the Bailey brothers split their lives between their families in Indiana and their work in Wall Street. The two downstairs rooms of the Assay Office building were for assay and company business. The brothers shared the upstairs room to the west as living quarters, while the other upstairs room was used as a pool hall.

The mill company went bankrupt in 1907 and was bought by the U. S. Gold Corporation, who dismantled the mill, moved much of it to Sugar Loaf, and sold the Assay Office to James Bailey on September 29, 1909. Over the years that followed, Bailey would change the sign on the top of the

office to read either the Storm King, Lucky Girl, or Good Morning, for when one mining promotion would fail, he would simply change the name and try again.

Ultimately both Bailey families would leave Indiana for Wall Street during the summer months; then, in 1914, James settled his wife, Gertrude, daughter Notah, and son, James Franklin, in Denver while he continued to spend most of his time in Wall Street.

On March 28, 1928, James E. Bailey was crushed by a 1,500-pound mass of rock in the Good Morning mine. His son James took over mining in Wall Street.

James F. Bailey was born in 1909 and at the age of 5 became completely deaf. He much preferred life in the mining camp over that in Denver and finally convinced his parents to let him stay with his father in Wall Street, or board with the Ruby Jackson family when his father was away on business trips. The small, caring mining community was good for Jim and he quickly learned his school lessons with the help of the Wall Street teachers and students. After his father was killed, his mother sold their home in Denver and moved into the Assay Office.

As a young man Jim worked as an ore sorter at the Wood Mountain Mill located west of the remnants of the Wall Street Gold Extraction Company Mill. Later he tried his luck at mining. He married Delores Sylvia Shulze in 1939, a good choice, because when his mining partner left, Delores ("Dee") took his place. They worked two shifts a day on leases at the Gillard, Franklin, and Henry mines. Her mining career came to an end with the birth of their daughter, Theda. When the gold mines were closed in 1942, the Four Mile Canyon miners had to look elsewhere for work and Jim began employment at a tungsten mill in Nederland.

In 1960, Jim's mother turned over the Assay Office/Bailey Residence to Jim and Dee. For 89 of its estimated 100 years, the Bailey family has maintained this important historic structure. Today, it holds volumes of Wall Street history collected and compiled by Dee Bailey, a miner's daughter, a miner's wife, and for a short time one of the few women miners in Boulder County.

On April 17, 1997 when Jim Bailey, one of the last Wall Street miners, died, Dee was determined to remind all those who live and visit Boulder that it was the miners and their families who helped to inspire our county's adventuresome spirit and early development. At last, in that same year, her efforts to erect a mining statue in front of the Boulder County Courthouse were successful, and she was included in the Women in Mining Industry Hall of Fame.

The Schulze Family

In 1873 a young married couple bought a one room mining cabin made of logs with a screened in porch and a dug-out cellar for 15 dollars in Wall Street. Frederick W. Schulze and his wife Emma made this cabin into their summer home. They lived in Denver most of the year while Frederick Schulze worked on the Switzerland Trail Railroad for the Colorado & Northwestern as a conductor. The couple had one son, Frederick R. Schulze.

Frederick R. Schulze married Nora Ray and took a honeymoon trip on the Switzerland Trail. The couple had eight children, the first, Frederick (Freddy) was born while his father, Frederick R., served in World War I. Douglas and Delores (Dee) were born in Colorado, Bobolink, Betty and Myrnaloy were born in Indiana, and Earlene was born in Wall Street. Sometime after returning from war a terrible accident occurred on the Switzerland Trail while Frederick W. was working as brakeman. The Shulzes decided to move to Indiana where they had family.

Every summer, the Schulzes packed the car and made the two-week drive to Wall Street where they would stay in the 15 dollar cabin the family purchased years before. When the depression hit, they moved back to Wall Street and this tiny cabin became their home until a house could be built. Frederick R. worked as a miner until he was laid-off and then worked for the Works Progress Administration (WPA). The children grew up in Wall Street, finding adventures in the mountains and attending the Wall Street school until it closed in 1940. The Shulzes enjoyed music and participated in the town's social activities such as the Christmas pageant, box lunch socials, and dances.

In 1939, a young Delores Schulze met Jim Bailey at a dance. They had both spent most of their lives in Wall Street but had never met. Sixth months later the couple married in the assay office and the reception was held in the schoolhouse. They later raised a family and helped preserve Boulder County's mining history by welcoming all visitors into the home they made in the historic assay office and sharing their first-hand experiences of growing up in the Rocky Mountain mining camps.

Bailey and Schulze Family Trees

James E. Bailey wife Gertrude (Kable)
1907 daughter Notah
marries Bryan C. Boden
1909 James F. Bailey
1939 marries Delores Bailey
daughter Theda
married Jack
daughter Jamie Lynn
son Jeffery Scott
son Troy Michael

Thomas Bailey wife Jane
?

Frederick W. Schulze wife Emma
Son Frederick R. Schulze wife Nora Ray
Son Frederick
Son Douglas
Daughter Delores Sylvia
Daughter Georgene
Son Bobolink
Daughter Betty
Daughter Myrtales
Daughter Earlene

Chemistry of the Historic Fire Assay

Courtesy of the Western Museum of Mining and Industry

This is very detailed information, just to review, not something to be expected at all to know for visitors!

Typical Assay Recipe:

Ore	3 Parts (see below)
Lead Oxide	8 Parts
Flour	1 Part
Borax	2 Parts
Potassium Carbonate	4 Parts
Sodium Bicarbonate	5 Parts

Amounts of ore assayed varied. However, one method was to weigh out one assay ton of ore. **29.16 grams = 1 assay ton.**

This measurement made the end-calculation easier. Using an assay ton results in each milligram of gold in the bead at the end of cupellation equally 1 oz. Gold per ton of ore.

Typical Flux Ingredients for the Fire Assay*

Flour – Acts as a reducing agent. Its high carbon content drives the oxygen away from the lead oxide, sugar and charcoal will also work.
Litharge (PbO) – Lead oxide reduces to form lead, which draws the gold and silver from the rest of the minerals.
Baking Soda (Sodium Bicarbonate) – Reduces the acidity of the ore and helps to form slag.
Borax – Also helps to balance acidity and forms slag.
Salt – Serves as a covering to prevent lead from sticking to the crucible. It also excludes air from the process.

Reducing agents, such as charcoal, flour, sugar and starch, contain carbon that is used to form carbon monoxide, which escapes as a gas:

$PbO + C = Pb + CO$ *or* $2PbO + C = 2Pb + CO_2$

Basic Fluxes form fusible slag with silica as silicate of soda:

Sodium Bicarbonate ($NaHCO_3$)

Sodium Carbonate (Na_2CO_3) – best

At red heat silica and soda form fusible silicate:

$Na_2CO_3 + SiO_2 = Na_2SiO_3 + CO_2$

Litharge (PbO), in addition to collecting Au & Ag, is also a basic flux:

$PbO + SiO_2 = PbSiO_3$

Acid Fluxes form fusible slag with the bases. Common bases are FeO, ZnO, MnO, CuO, CaO, MgO and BaO. Borax ($Na_2B_4O_7$) is a common acid flux:

$FeO + Na_2B_4O_7 = Na_2FeB4O_8$

Oxidizing Agents are used to oxidize sulfides where the ore would reduce too large a lead button:

Nitrate of potash = nitre = KNO_3

Nitrate of soda = $NaNO_3$

Salt acts as a wash to bring down particles clinging to sides of crucible.

Assay Talking Points/supplemental information

What is Assaying?

- Assaying is a process to determine the amount of gold, silver, or other metals in a given sample of ore, usually in ounces per ton.
- Prospectors staking claims & mine operators never knew by looking at an ore sample how much gold or silver it contained (e.g., how much gold or silver is my claim or my mine yielding?)
- Assaying is both an Art and a science varying from crude processes put of a tent, to very involved chemical analysis.
- Different types of assays; most common in mining areas of the American West was fire assay.

Online resources for more learning about assaying, **courtesy of Volunteer Markus Raschke**

A video explaining the chemistry and process how it is performed today, conceptually not all that different compared to how it was back when the AOM was an assay office - just with more modern (and safer) equipment:
https://www.youtube.com/watch?v=5Y4qqCeyQ88

Here is the action depicted closer to how one can picture it performed at the time, and how small-scale miners run the process today, with a bit makeshift equipment:
https://www.youtube.com/watch?v=8VU7UcPWZUo
(he speaks about smelting which he means just a bit larger quantity scale of assaying)

This is from Jason Gaber in Bellingham, WA. He runs a company for small scale mining equipment and has a lot of "instructional" videos discussing topics from crushing to concentrating, etc.

Here is a 2-part series specifically on Au assaying - that really comes close to the look and feel what was done in the 19th century:
https://www.youtube.com/watch?v=39_xyUHTshw
https://www.youtube.com/watch?v=8QTw8yGw3O4

Now, a caveat, given the telluride ore in Boulder, there might have been some variation to the type of flux used. There aren't specifics on this though.

The Assay Office (our assay office does not have these areas/rooms but perhaps it was set up like this in some way in the past)

The assay office, like most business offices in the mining camps, were false-fronted, wood frame buildings. These small, unpainted buildings could be distinguished by their tall brick chimneys, and

by the pile of broken crucibles, cupels, and slag out the back door. They were located close to the town's commercial district not far from the saloons, bathhouses, and hotels, where prospectors could pass the time waiting for their results. Another good location was behind a main street bank since assay shops were used to test bullion. They were typically one-story affairs, or occasionally two stories with a living area upstairs, consisting of three rooms: the office, the laboratory and scale room, and a back store/work room.

- **Front Room**: Right inside the entrance was the assayer's office with its accompanying books, charts, sample bags, and artwork suiting an assayer's educated taste. This room might have served as an area for customers and other interested individuals to await the results, although the more reputable offices discouraged waiting to prevent tampering of samples by visitors.
- The **second room** served as the laboratory where ore samples were crushed, prepared, and fired. In this room were various crushing tools, (Muller and buckboard, chipmunk crusher, mortar and pestle), chemicals, crucibles, cupels, more sample bags, and the oven and its related tools. Within this room was a scale room, where final measurements were taken, and evaluations made using a sensitive assayer's balance. This room was kept as clean and dust-free as possible to ensure accurate measurements.
- The **back room** was used primarily by the assayer's apprentice for crushing samples and molding cupels, and storage.

The assay offices were notorious **firetraps**. Given the near-constant use of a furnace at very high temperatures, it is not difficult to understand how hazardous these offices could be. The careless construction of a furnace or chimney, or inadequate precautions on the part of an assayer or his assistant could cause a disaster in a camp or towns that were built primarily of wood, with little or no fire protection.

The Assayer

Who was the Assayer?

- Independent or custom assayer
    - Assayers followed prospectors in the Western US.
    - Important role in mining camps, results could prove/dispute value of prospector's claims.
    - Assayer doctor results, payment under table with prospector.
    - Prospector salt claim & provide assayer with unrepresentative sample.
    - Assayers directly or indirectly contribute to miners' high grading ore from mine by buying ore samples. High grading was when miners snuck ore out of a mine in hopes that they could have its value for themselves. It was rumored that the 1902 bombing of 8 Cripple Creek and Victor assay offices was a plot by mine owners to send a message to miners to stop high grading. Colorado outlawed assayers buying ore samples from anonymous sellers in 1915.
- Company assayer
    - Had to test a sample of everything that came out of the mines. Their findings influenced decisions on which parts of mines to develop & open, or which parts to close, based on these tests. They had to do this to make sure the mine made a profit.

The US Mint used assayers to determine purity of ingots purchased from smelters. Ingots were used for coinage.

The Assay Process

Field Assay Tests (mainly used by prospectors, beyond scope of this program; see display in assay case near front entrance.)

- **Blow Pipe Test**
- **Acid Test**: used to distinguish silver and gold from white base metals.

The Fire Assay: Recall that the goal of the fire assay is to determine the amount of gold or silver in a given sample of ore, usually in ounces per ton.

1. **Sampling**: a representative sample must be obtained from the mine or claim otherwise the assay will not be accurate. A conscientious assay would employ several techniques to ensure a representative sample throughout the assaying process; the material would be repeatedly mixed and piled, split into quarters, and the opposite quarters would be taken for the next step.
2. **Initial Weighing**: need minimum of 5lbs, up to 50 lbs. of material; use grocery scale to weigh initial sample of say, 10 lbs. of ore.
3. **Primary Crushing**: Next, the assayer would crush the sample of ore. Crushing the ore free gold and silver particles from their surrounding mineralization. The finer the ore is crushed the more accurate the assay will be. Ore was first crushed to a corn kernel size in **the jaw crusher, called the chipmunk**. [WITH SAFETY GLASSES ON, THE GUIDE AND A MEMBER OF THE GROUP CAN OPERATE THE CHIPMUNK CRUSHER BY HAND]
4. **Mulling**: The crusher would be placed on a **buckboard** opposite quarters of the corn kernel size ore.. A 25-pound **muller** would run over the ore to crush it down to a power fine powder. [WITH SAFETY GLASSES ON, THE GUIDE AND AMEMBER OF THE GROUP CAN OPERATE THE MULLER & BUCKBOARD] *Note: Careful cleaning was essential to prevent cross contamination of assays.*
5. **Sifting**: Parts of the mulled sample would be taken passed through to go through an 80 – 100 mesh sieve, or **screen classifier**. The finer the crushed ore, the more accurate the assay.
6. **Splitting**: The sample would be placed in a splitter, which divides the sample into equal parts. It was important that the sample represent an AVERAGE of ore composition. Split samples would be sent to different locations for comparison (e.g., one sample would go to the ore seller's (the mine's) assayer, the second sample went to the ore buyer (the smelter or mill) and the third sample would to a third impartial assayer to be tested if the results from the first two assays didn't agree.) *Note: Split samples used today in environmental testing.*
7. **Weighing of the Sample**: Next, the sample to be assayed would be weighed – a very critical step. Amounts assayed varied however, one method was to weigh out: 29.16 grams = 1 assay ton. This measurement made the end-calculation easier; each 1-milligram of gold from the assay equals one oz. Gold/ton of ore.
8. **Fluxing**: The weighed sample would be placed in a marked crucible and flux added. In a fire assay, chemical fluxes are used to help lower the melting temperature of the ore, separate the gold and silver from the remaining rock, and aid in the formation of slag. Various fluxes would be added to the sample. The fluxes used in a

fire assay depend upon the type of ore being assayed and what other metals are present, such as copper or zinc.

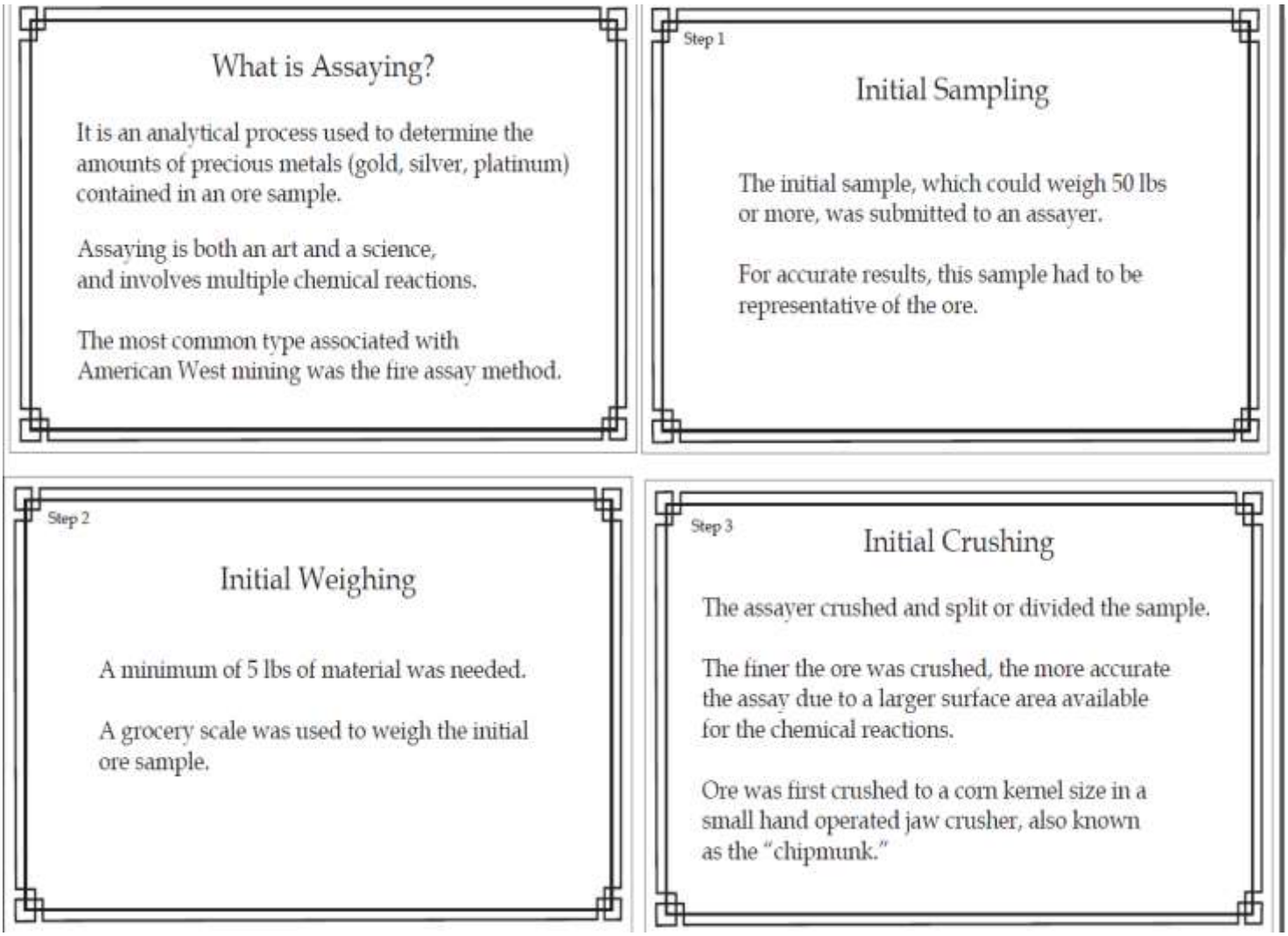
a. **Typical Flux Ingredients**:
    i. *Flour* – Acts as a reducing agent. Its high carbon content drives the oxygen away from the lead oxide, sugar and charcoal will also work.
    ii. *Litharge (PbO)* – Lead oxide reduces to form lead which draws the gold and silver from the rest of the minerals.
    iii. *Baking Soda (Sodium Bicarbonate)* – Reduces the acidity of the ore and helps to form slag.
    iv. *Borax* – Also helps to balance acidity and forms slag.
    v. *Salt* – Serves as a covering to prevent lead from sticking to the crucible. It also excludes air from the process.
b. *NOTE*: Usually the above info would be sufficient info for a typical tour. Should you need more detailed chemistry info (for example, a chemistry class), see the appendix for a chemistry summary and teacher handout. Basic fluxes used are soda (Na_2CO_3 or $NaHCO_3$), pearl ash or potassium carbonate (K_2CO_3) and litharge (PbO).

9. **Initial Firing**: The crucible was placed in the center of the furnace and heated to 1800° - 1850° F. The furnace door was closed, resulting in a reducing environment in the furnace. The lead oxide supplied O_2 turning the lead oxide to lead. It was important for the assayer to note each sample's location. The sample would "cook" until it reached "quiet fusion" (smoking and sizzling will stop), or about 1 ½ hour for an assay ton sample.
10. **Pouring**: After quiet fusion was reached, each crucible was carefully removed from the oven and the contents immediately poured into a cast iron cone mold. The mold cooled for 5 – 10 minutes and then the contents removed. In a successful assay the cone should consist of two things: a clear, glassy slag on top and a bright lead cone on the bottom. The glassy slag is formed from the borax added to the sample and from silica in the rock matrix. (As the cone cools, hot slag may begin to shatter and flake off.)
11. **Separating Slag**: After the cone was allowed to cool for 5 – 10 minutes, a hammer was used to break the slag away from the lead cone. The lead cone was pounded into a cube to remove the remaining slag.
12. **Cupellation**: The lead cube was then placed into a preheated bone-ash cupel-a cupel made of crushed bone ash, flour and water. It absorbed the lead in the sample like a sponge, but was impervious and would not absorb silver or gold.The preheated cupel and lead cube were placed into a 1750° F furnace with the oven left open slightly allowing the lead to oxidize and to begin absorbing into the cupel. The cupel needed to be checked frequently and removed when all the litharge had been absorbed into the cupel causing it to turn a greenish-yellow color. If gold, silver, or platinum were present, a shimmering button remained in the cupel. When the button was removed from the heat it would flash as it rapidly gave up its heat. The cupel and button were cooled and then the button was removed, flattened so as not to roll away if lost.
13. **Weighing the Button**: Using an assayer's balance, the weight of the button was determined in milligrams. Remember, the amount of ore in the sample was weighed to be 1 assay ton in order to simplify the weighing of the button as follows:

a. **<u>Button weight (milligrams)</u>** = ounces of gold/silver per ton Ore in Assay Tons

14. **<u>Parting</u>**: Up to this point, the assay has only determined how much gold and silver is in the ore. To determine the precise amount of gold there is, the button must be "parted." The button is dropped in a warm, diluted solution of **nitric acid** ($2H_2O$: 1 Nitric Acid). The nitric acid dissolved the silver to form silver nitrate, leaving a dark speck of gold in the bottom of the dish. It is possible to weigh the button before and after parting to calculate the exact amount of gold. The difference in weight between the first and second measurements determined how many ounces of gold and silver were in every ton of ore. However, these were very critical measurements. A good estimation was made by observation using the chart found in the endnotes.

Interpretive Panels/Signs at AOM (we tried to make these as readable as possible, yet conserve space. Of course, they are full size at AOM)



Step 4

Initial Splitting

As the sample was initially crushed, it was also split to reduce the amount of material to be finely crushed.

This could be done by either mixing and splitting by hand, or by using a device such as a Riffler splitter.

If splitting by hand, the assayer would mix the sample then divide the ore into sections like a pie.

The assayer then retained half of the split sample to continue the process.

The Riffler splitter mixed and split the sample at the same time.

Step 5

Mulling

The corn kernel size ore from the crusher was placed on a buck board or bucking board.

A 25-pound muller (an iron shoe affixed to an axe handle) would run over the ore to crush it down further.

Step 6

Sifting

The mulled sample was passed through a size 80 – 100 mesh sieve, or screen classifier.

Any material that did not pass through the screen was crushed until it did.

Final crushing was accomplished in a mortar and pestal.

Step 7

Splitting

The sample was placed in a splitter, which divided the sample into equal parts.

It was important that the sample represent an average of the ore composition, so multiple split samples were obtained.

The additional samples were retained for resampling or sent to different locations for comparison.

For example, one sample might go to the mine's assayer, the second to the ore buyer (the smelter or mill), and the third to an impartial assayer to be tested if the results from the first two assays didn't agree.

Step 8

Weighing of the Sample

This was a critical step!

To make calculations easier, assayers used 29.17 grams of ore.

One ton of ore contains 29,167 troy ounces so if the assayer used 29.17 grams of ore then 1 milligram of gold or silver in the ore would equal 1 troy ounce of gold or silver.

This was known as the assay ton.

Step 9

Fluxing

The weighed sample was placed in a marked crucible andfflux was added. In fire assay, fluxes were used to lower the ore melting temperature, separate the gold and silver from the remaining rock, and aid in the slag formation. Chemicals used as flux included flour, litharge (lead oxide), baking soda, borax, and salt.

Typical Assay Recipe:

Ore	3 Parts
Lead Oxide	8 Parts
Flour	1 Part
Borax	2 Parts
Potassium Carbonate	4 Parts
Sodium Bicarbonate	5 Parts

Step 10

Initial Firing

The crucible, which contained the ore sample and flux mix, was placed in a furnace and heated to 1800° - 1850° F.

The sample would "cook" until it reached quiet fusion when smoking and sizzling stopped.

Step 11

Pouring

Each crucible was carefully removed from the oven and the contents immediately poured into a cone shaped cast iron mold.

In a successful assay, the cone consisted of two things: a clear, glassy slag on top and a bright lead (with gold and silver) cone on the bottom.

The glassy slag was formed from the flux added to the sample and the rock matrix silica.

Step 12

Separating Slag

After the cone cooled, a hammer was used to break the slag away from the lead cone.

The cone was pounded into a cube removing the remaining slag.

Step 13

Cupellation

The lead cube was placed into a pre-heated bone-ash cupel.

The cupel absorbed the lead but not the silver or gold.

The pre-heated cupel and lead cube were placed into a 1750° F furnace and the oven was left open to provide oxygen to both oxidize the lead and absorb it into the cupel.

The cupel was checked frequently and removed when all the litharge had been absorbed into the cupel turning it a greenish-yellow color.

If gold, silver, or platinum were present, a shimmering button remained.

The cupel and button were cooled and the button was removed and flattened to almost paper-thin.

Step 14

Weighing the Button

Using an assayers balance, the button weight was measured in milligrams.

Remember, the ore sample was weighed to be 1 assay ton in order to simplify the weighing of the button as follows:

Button weight in milligrams = Troy ounces of gold/silver per ton of ore.

Step 15

Parting

To determine the precise amount of gold, the button had to be "parted."

The button was placed in a warm, diluted nitric acid solution.

The nitric acid would dissolve the silver forming silver nitrate, leaving the gold.

The gold was annealed (heated) prior to weighing.

The button was weighed before and after parting to determine the exact amount of gold it contained.

Boom or Bust

Look up and down the canyon. Can you envision a thriving mining camp? Wall Street was one of many mining towns in Boulder County's foothills.

At its height, Wall Street had a population of 300 people, a grocery, boarding house, school, post office, blacksmith shop, saloon, newspaper, mill, assay office, and a stop on the Switzerland Trail Railroad. In the fall of 1858, a small party led by Captain Thomas Aikens departed from the stream of gold-seekers heading to Cherry Creek near Denver. They camped at Red Rocks at the mouth of Boulder Canyon. Crude cabins were soon built and the prospectors went to work, hoping their dreams would "pan out."

In 1858, gold was discovered in Gold Run just north of here and the rush to Boulder County began. New camps and towns were quickly established – and quickly disappeared. Wall Street is one of the camps that survived through the years.

Above: James Bailey (right) at the entrance to the mine.

Below: James Bailey (left) working the Good Morning Tunnel, 1903.

Grand Beginnings

In 1897, Charles W. Caryl purchased 60 mining claims in Boulder County. Caryl convinced many people to invest in his grand plans and changed the name of the camp from Delphi to Wall Street.

After James E. Bailey was discharged from the Spanish American War in 1898, he met Caryl and was intrigued by his plan. Bailey became the manager at the Nancy Mine and his brother, Thomas Bailey, joined him as an assayer for the Gold Extraction Company Mill.

Thomas Bailey used the first floor for the assay office, and James Bailey used the upstairs for his office, living quarters and a pool hall. When the mill company failed, the assay office sat idle until purchased by James Bailey in 1907. The Bailey family owned the assay office until it was sold to Boulder County in 2001.

The Boulder County Parks and Open Space Department manages the museum. Please come back during our hours of operation.

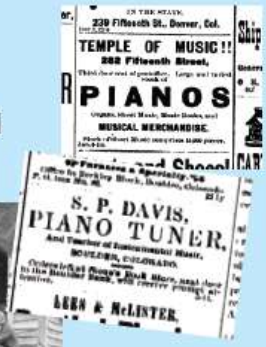
Left: James Bailey (right) is pictured in front of this building when it was the Assay and Mine Office of the Storm King Mining Company in 1907.

All photos courtesy of the Bailey Family

The Sound of Music.....

Music and mining have a long history together. In the secluded mining camps, music was at the center of entertainment. Concerts, parades, and dances brought communities together for fun and socializing.

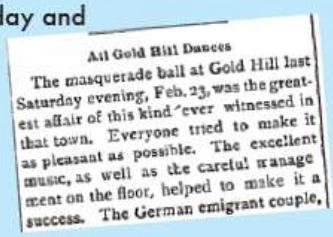
Like other folk music, miners used songs to capture their personal experiences. Listening to their songs today brings to life the hardships and joys of the mining camp.



Above: Newspaper advertisements from Boulder County News in the late 1800s.

Left: Caribou Silver Cornet Band. Denver Public Library Western History Collection

Dances were another popular form of entertainment. Wallstreet held dances every Saturday and drew attendees from the surrounding area. These dances were perfect meeting spots for young people. Jim Bailey met his wife Dee at a dance!



All Gold Hill Dances

The masquerade ball at Gold Hill last Saturday evening, Feb. 23, was the greatest affair of this kind ever witnessed in that town. Everyone tried to make it as pleasant as possible. The excellent music, as well as the careful manage ment on the floor, helped to make it a success. The German emigrant couple,

Wedding Dress

In 1939, at the age of 18, Deloras (Dee) Schulze married Jim Bailey in Wallstreet.

A picture of Dee wearing her light blue wedding dress can be seen on the piano.

WALL STREET ASSAY OFFICE

From Grub Staking to Riches

The Office

What do you think was done here? The assay office played an important role in mining because the assayer would test the prospector's sample from his mining claim, using precise instruments and exact measures to determine the value and quality of the ore. If the prospector got favorable results from the assayer, he had two choices. He could either sell the claim to a mining company or start his own mining company.

The Tools

Among the tools used by an assayer was a large furnace. What do you think it was used for? The assayer carefully weighed a fixed portion of the ore sample with sensitive balances and then poured it into his crucible, mixing it with chemicals. The furnace was then used to heat the mixture. Because the heat was hard on the face and eyes, he watched this process carefully through a slit in a board equipped with a handle. This board was later replaced by a welder's mask.

The Expert

There were almost no assayers in the United States in 1849. The Royal School of Mines in England and the Freiburg School of Mines in Germany quickly remedied this situation by training apprentices who were then sent to the United States to complete their apprenticeships. These apprentices tended to be young men, ideal for the assayer's work that involved time-consuming physical labor.

The Tipping Point

Look around you. What do you think was the most important instrument for the assayer? The balance was as important to the assayer as a rifle was to a buffalo hunter. That balance could make or break a prospector because it determined whether a sample had enough value to open a mine.

JAMES F. BAILEY ASSAY OFFICE MUSEUM

The Baileys' Life on Wall Street

As you look around the room, most of the furniture that you see belonged to the Bailey family who arrived in Wall Street in 1900. The furniture is not typical of that found in a miner's home but would have been common in an assayer or mine supervisor's home.

OLD-FASHIONED ROAD SHOW

The Bailey family enjoyed music. On Sunday evenings, the Baileys would load the piano on the back of a truck, drive up and down the road, singing and playing the piano. Their neighbors never complained.

OTHER FAVORITE PASTIMES

Can you imagine working all day with no time to play? Prospectors felt it was important to have some leisure time with their families. One activity that most folks enjoyed was dancing. Dances were held every Saturday at the schoolhouse and would last all night. Children slept on desks and floors while everyone else danced. Women would bring sandwiches and coffee to be served as a midnight snack. When the song "Three O'Clock in the Morning" was played, everyone knew the party was over and it was time to go home. In 1939, James and Dee Bailey met at one of these dances and were married six months later in this assay office. Where did your grandparents meet?

Baseball was another favorite pastime. Each mining camp fielded a team to compete against the other camps. James F. Bailey played on the Wall Street baseball team that was sponsored by John Valentine, who owned a hardware store on Pearl Street in Boulder.

BOULDER COUNTY PARKS AND OPEN SPACE

AOM Opening and Closing Procedures
Arrive 20-30 minutes before opening time

You will need the site's lockbox code. Inside is a BCPOS key No. 2872 and museum key to open the padlock and door lock.

Volunteers may occasionally be asked and are allowed to—depending on their comfort level—to open and/or close the museum and staff the museum when staff is not on site.
Though at least two people, a combination of staff and volunteers, staff and volunteers are ideal for staffing many of our Cultural History sites/museums, sometimes it may be necessary for just one staffer/volunteer to staff sites alone.

<u>Opening Procedures</u>

- Park in the spaces on the east side designated for staff
- Take OPEN sign usually stored in the Bathhouse to the intersection of Four Mile Drive and Gold Run Road (the Salina Junction) and place it so that visitors coming up Four Mile Canyon Road from Boulder Canyon can see it
- Unlock the screen door and front door
- Open all window shades in both rooms
- Remove plastic sheets covering all the displays in both rooms; store them in the storage closet. Fabric sheets are to be placed on the artifacts only at a season's end. Fabric sheets remain on top of plastic sheets to protect the artifacts between seasons (during the winter)
- Set up all the descriptive plates on the equipment table
- Sweep all floors as needed
- Check bathroom for cleanliness and toilet paper and towels. During the season (May-October) per our cleaning contract, cleaners should visit the museum once monthly. However, as we all know with old buildings, dust and pests find their way in between cleanings
- Make sure that there at least three copies of Dolores Bailey's books- "God's Country U.S.A" and the two books on the miners- on display on the middle windowsill. They are stored in boxes in the storage closet. Notify Coordinator if more copies must be ordered/reprinted. Each book sells for $30 (no tax), either cash or a check to Boulder County
- In living room open the piano and set up photos. Open the wardrobe cabinet and arrange Dolores' wedding gown for display

<u>Closing Procedures</u>

- Count number of visitors; note that to share with the Nederland Mining Museum Coordinator via email or call the museum and share that with him/her by phone or voicemail

- Gather book sales/donation money and follow procedures here to leave in a pre-arranged safe place for the Nederland Mining Museum Coordinator. Volunteers should not take on the responsibly of transporting money
- Reverse Opening Procedures

General Daily Museum Guide Duties

- Greet visitors as they enter the museum. SMILE! Be friendly and courteous
- Encourage visitors to sign the Guest Book; ask where they are from
- Record the number of visitors by tallying visitors when they enter
- Answer questions about mining history, the community, and museum exhibit items/equipment as you are able. If you cannot answer a question, see if another volunteer or staffer can. It's fine to say "I don't know" rather than give incorrect information
- Visitor and artifact safety are vital. Do not let visitors sit on furniture in living room or handle delicate artifacts in the exhibit
- Show or call attention to interesting exhibits or artifacts. Ask questions to determine what aspects of mining visitors find interesting

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BCPOS CH has done various virtual programs, volunteer trainings, and videos about a variety of topics

https://www.bouldercounty.org/open-space/education/cultural-history-corner/

https://www.youtube.com/playlist?list=PL2F2E8E2A8CA4B11E

https://www.youtube.com/playlist?list=PLtrbfxxeVkjPpush8ajbkk8HmvMsgMqD_

Oral History recordings, photographs, manuscript histories and other documents relating to Nederland area history may be found at the Carnegie Branch of the Boulder Municipal Library, Pine St., Boulder and are available to listen to anywhere from its online catalog. The Library provides some on-line searching for names and topics. The Mining Museum also has a couple of industry catalogues from the past century that provide illustrations and descriptions of mining equipment

Boulder County Parks & Open Space
Nederland Mining Museum
Volunteer Handbook Addendum

Artifact Guide

Transcribed 2020 by Volunteer Michael Dallin

Nederland Mining Museum Artifacts from video collection

This document summarizes the descriptions of Nederland Mining Museum artifacts as given on videos provided by the Nederland Area Historic Society (NAHS) when the museum was transferred to Boulder County Parks and Open Space as well as videos filmed during the donations of certain artifacts.

(?) appears where the volunteer transcriber doesn't know the exact spelling, or what was said was unclear in the video.

While this information does include the names of donors of some artifacts, donors are not a focus of most professionally operated museums in modern times. There is no need to memorize donors' names or know them to share casually with visitors. That information is just provided here as a reference, something to look up about an artifact only should a visitor ask. Donor information is not provided for all artifacts, anyway. Information on what the artifacts are and how they were used in hard rock mining is the focus.

Some of these artifacts have since been moved to AOM or AHC or the BCPOS Archive Room. This was a wintertime pandemic at home volunteer project so information wasn't able to be checked in person at the museum until now. Please be in touch with the NMM Coordinator and Cultural History Program Coordinator if you find that artifacts in this document are not longer at NMM or are not on exhibit. We need your help in making this information as up to date as possible!

Information below came from the following videos

- Eric Twitty at NMM Interpreting Artifacts (38:22 length)
- McGowan Collection Info (1:34 length). Note, this video appears to be corrupted.
- NAHS Training (1:00:06 length). The first 5:09 of the video gives a general overview of what was mined in the area and briefly what life was like back then.
- Upstairs Neuscheller Collection Furnace Retort Glass Stand (0:28 length)
- Walkthrough NMM with NAHS's Dan Martin 2012 Artifact ID (1:28:48 length)
- Wolcott and McGowan and Extra Bins Upstairs Closet (0:42 length)

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Mechanical Drills and Accessories

History of Mechanical Drills

Drills are used to bore holes in the rock for blasting. Multiple holes are drilled, packed with explosive and detonated, so the surrounding rock is blasted away.

Originally drilling was done with hand drills, where a miner would hold a drill steel, hit it with a hammer, rotate the drill steel a quarter turn, and repeat. This method involves two impacts: the hammer hitting the drill steel, and the bit end of the drill steel hitting the rock. The first mechanical drills were an attempt to replicate the hand driller's impact on the rock.

Some of the earliest mechanical drills were developed in the Comstock lode in Nevada. Another innovator was man whose last name was Burleigh, who ran the Burleigh tunnel in Silver Plume, Colorado. These earliest drills came about in the late 1860s.

The way the first drills worked (based on photo to left). On the left (going out of the photo) is the drill steel. The round feature is the drill chuck that holds the drill steel to the drill. To the right of the chuck is a shaft that runs inside of the body of the drill (the body being the far right portion). The body is basically a large round cylinder with a piston (like an engine). The casing on top of the body (called a valve chest) is a slide valve with two ports for steam or compressed air. A plate inside the valve would move back and forth based on the steam/air. The plate would close the front of the two steam/air ports. The steam/air would enter the back port and fill the back of the cylinder, sliding the entire drill/chuck/shaft assembly forward (toward the rock). A lever was then tripped which slid the plate back, closing the back port and opening the front port. Steam/air would then go fill the front of the cylinder, forcing the drill/chuck/shaft assembly back. Because of the huge mass of the drill steel/chuck/shaft, these early drills were not efficient and consumed a lot of power. These early drills are called "piston drills."

Early drills were run on steam. Later it was found to be more efficient to have a steam-powered air compressor on the surface, and it'd run on compressed air underground.

These early drills (with moving drill steel/chuck/shaft) were the basic drill technology from the late 1860s into the 1910-1920 time frame.

Another Clear Creek County miner (note: who was born on his father's ranch in Left Hand Canyon, Boulder County) named George Leyner revolutionized drills. Seen romantically as a lowly paid miner who invented something great, the truth is that he had a background in machining. Leyner realized that the old drills were inefficient, and it was more efficient to replicate the old hand drilling in a mechanical way where you have a hammer tapping a drill steel. He felt that a talented hand driller could match the performance of early mechanical drills, and studied how they did it. He hypothesized that if you kept the drill steel loose in the chuck and ensured that only the piston in the body moved (which provided a hammering action) the system would require much less energy and would be more efficient. His design was an early hammer drill.

His earliest design was developed around 1897. With heavy machinery (mines were concerned with replacement costs) adopting new technology is slow, and this took around 20 years.

Leyner's design is similar to piston drills in many ways: they both have valve chests and the body is a similar shape. The also had similar carriages, which is the mechanism (with the turning handle) that allows the miner to advance and retract the drill. Retracting while drilling was necessary to replace the drill steel with a sharper or longer one to make the hole deeper.

The earliest drills of Leyner's design had valve chests on top. In the 1920s, drill makers—including Intersoll-Rand, Gardner (based in Denver) and Denver Rock Drill Company (the latter two later merged to form Gardner Denver)—created a replacement for the sliding valve chest system. The new system was a collection of tubes and ducts (some machined into the drill) that somehow caused the air to reroute when the piston was in the forward position, and thus move it backwards.

Medium Sized Piston Drill

This is a medium sized piston drill (that is, the earlier drill technology where the drill/chuck/shaft all moved). Piston drills came in different sizes for different applications; some were bigger than this one. Medium sized piston drills like this one were good for boring tunnels underground, and passages.

Smaller Sized Piston Drill

This one is retracted because somebody pushed it all back and it rusted that way. Smaller piston drills were used in confined passages and on stopes. These were not as fast or powerful as the larger drills, and couldn't drill as big of holes.

Early Hammer Drill

This hammer drill came from the Cripple Creek mining district.

Steam Drifter Drill (Widow maker)

The earliest mechanical drills, which used steam as their energy source. This one is from the 1880s, patented around 1883. This one is a "drifter"—that is, it is made specifically for drilling in a horizontal shaft.

The widow maker produced a tremendous amount of silica dust, which would cause silicosis in miners; they would die after a few years of exposure. In later models a second smaller hose was added that injected water into the drill, which would flow through a hollow drill steel and spray the rock face as it was drilled. The water kept the drill cool and the drill surface lubricated but also kept the dust down by 90%, saving the miners from silicosis. Note that drilling was not the only source of dangerous silica dust in a mine— cart traffic, shoveling dry muck, even hand drilling generated plenty of deadly dust—but it is a major source.

The Bureau of Mines did not require drills to be run "wet" (that is, with water) until around 1915-1925. Stoper drills were not required to run "wet" until later, in the 1930s.

This one is rare.

Stoper Drill

(Note, it is behind the column in this photo). Stoper drills were used to drill upwards, into the ceiling. They have a mechanism that pushes them up, advancing the drill steel upwards.

This one takes Leyner's hammer drill idea and reduces the scale. Everything—the piston, etc. —is all smaller. Leyner's drifter drills were designed to have positive drill steel rotation to keep the hole round, but this drill did not have that. Instead it has a handle sticking out that the miner would move back and forth (thus rotating the drill) to provide rotation. If he didn't do that the drill steel would jam in the rock.

The tube at the bottom (back) of the drill is a compressed air-powered cylinder that would push/telescope the drill continuously upward, into the ceiling. If the cylinder is under air pressure, the bottom pushes straight out, and keeps doing so as long as it's under pressure. As the drilling progresses and rock is removed it pushes it upward.

This one did not run "wet" (i.e. it is a widow maker), stoper drills were not required by the Bureau of Mines to run wet until the 1930s (drifter drills were required 10-20 years earlier). Eric does not know why stopers had the delay.

Compressed Air Drills

Came out in the 1890s-early 1900s. Used compressed air as their energy source. To work: wind the worm gear all the way out. Put the drill against the rock wall, turn on the compressed air. Slowly wind the worm gear back in, pressing the hammering drill steel against the rock wall. You could put drill steels on to drill anywhere from three feet to 12 feet deep, depending on the rock type.

These drills are likely widow makers as well (see above) as they don't have the second water hose.

Washboard Drill

So named because the "teeth" on the back end (where his hand is in the photo) resembled old-style washboards. This is likely a widow maker as well (see above), since it is missing the water hose.

Eric Twitter refers to this as a "mounted sinker." This drill is an "auto-feed." Typically, two miners ran a drill, one who made sure everything was running correctly and swapped drill steels, and one who manually advanced the drill using the turn-crank on the back. This one has a mechanism in the back of the drill, run on compressed air, that automatically fed the drill forward, so the crank was not needed. They came into being in the 1930s. Not many companies made auto-feed drills. This allowed one miner to run two or even three drills simultaneously.

This particular washboard drill came from a gold mine near Grass Valley, California

Eric says he got this at a gold mine near Nevadaville, which seems to contradict the above (it's unclear but based on the other drills on that column he is talking about the same drill).

Round Keyed Drill Steel

These were the drill steels used in Leyner's design. They are round, but have two "keys" on their sides that, when placed into the chuck and turned, would lock them in place. Drill steels came in different lengths and diameters.

Fluted (Cruciform) Drill Steel

This drill steel is fluted; that is, it makes a plus-sign shape if you look at it end-on, instead of being round. These drill steels were used in stoper drills; they drilled into the ceiling. Stoper drills, unlike drifter drills, did not mechanically rotate the drill steel - that was done manually with a handle on the drill (see Stoper Drill)

Ingersoll-Rand Drill Bit Sharpener

Used to sharpen drill steels better used on machine drills (the bits with the X-shaped drill ends). The drill steels were heated up by a blacksmith until they were red hot and then put inside the sharpener, the sharpener was then clamped down on top of it and “upset” the tip of the steel, thus sharpening the ends. A bucket of sharpened drill steels was brought down usually at the beginning of a shift.

Donated in 1997 by Pete Reynolds. It was found in a field.

This drill sharpener came from the Reynolds ranch (now a Boulder County Open Space property), it belonged to Merle Reynolds.

Drill Columns

Held drills for drilling dynamite holes. Could be mounted to the mine shaft wall horizontally and vertically. Drilled were mounted to arms coming off of the column (as shown in picture, one to left does not have a drill). Allowed 1500 blows per minute, increasing mine efficiency by 80%.

Carriage Adapter

Because the sinker drills were so inexpensive and light, they could be mounted and used for other purposes. This carriage adapter—a carriage with no drill attached—were used to mount the sinkers so they could be used as drifters. This carriage adapter appears to be specially made to mount the model of sinker drill, above.

Jack Leg

These are telescoping legs that you attach to sinkers so you can use them in configurations besides downwards. A sinker drill is attached. This one is an early steel version. By the 1940s-50s they were aluminum.

This came from a mercury mine in Northern California next to a lake whose name Eric couldn't remember.

Eric donated the sinker drill attached to the jack leg, but is unsure where he got it.

Air Receiver Tank

This acted as an extra reservoir (or fuel tank) for air for compressed air drills. Carried into the mine using the two handles, and placed next to drills. Normally drills hooked up directly to air hoses from the surface would run out of air within a minute due to the time it took to bring air down. The tanks collected the air from the surface, extending the time before the drill ran out of air to about ten minutes before you'd have to stop and wait for the tank to refill.

Hoses

Rubber quality was poor in early hoses. By 1910-1920, quality improved. Early hoses wouldn't last a month because they would dry rot and crack.

Drill Hose

A hose for compressed air for a drill. This hose is circa 1930s. You can tell because, instead of hose clamps connected to the pig, it uses bailing wire—a money-saving trick from the Great Depression era.

This appears to be the hose attached to the washboard drill, but it is unclear. This is attached to the drill Eric says he got from a gold mine near Nevadaville. See the Washboard Drill entry for more details. Eric says he got this in Eastern California.

Pigs

These were connected to the compressed air hose of drills. They contained oil. As air ran through the hose, the oil mixed in and lubricated the internal components of the drill. The first one is made of cast iron.

The Ingersoll-Rand pig is a more modern version, made of aluminum, which allowed it to hold more oil

Crushing and Milling

Chipmunk Ore Crusher

Used by assayers to crush popcorn-sized pieces of rock. This one is an early one, from around the 1890s (the other chipmunk ore crusher is newer). Used with the Fairbanks Morse Type Z Engine above for tourist demonstrations at Nederland Mining Days (circa 2011-2012).

Donated by Johnny Jackson. He did the conversion to an electric motor. He used it for tungsten processing. He did the final crushing with another machine, then shipped the tungsten to the government when he had a contract with them.

Chipmunk Crusher

This was used for assaying. Small pieces of ore were put in the top and crushed into a powder called face powder. Originally run by hand crank, the electric motor was added by Dick Fraser. Formerly used for demonstrations in the museum, but shear pin is broken.

Donated by the Fraser family. Dick Fraser was a local miner in both Boulder and Gilpin counties.

Cornish Single Stamp Mill

Extremely rare early single stamp mill, believed to come from the 1860s. Dan only knows of one other in Colorado today. Used in one or two man hard-rock mining operations. A 300-pound steel weight would crush ore (usually the size of a softball, or smaller) mixed with water. Early stamp mills were driven by steam engines connected with flat belts, in later years they were driven with electric, diesel or gas motors. It could go up and down up to 100 times per minute.

This was invented by Cornish (i.e., from Cornwall, England) miners, who have a long (many centuries) mining history. Cornish miners invented or improved upon much of the mining equipment used in Colorado.

Donated by Ronnie Dayhoff around 2006. His family had a great mining ties to the Nederland and Boulder County area. His wife's family has ties to BCPOS's Altona Schoolhouse: the Gould family.

Amalgamator (Washoe Muller)

This was used in the milling process. Face powder (crushed ore concentrate, see Chipmunk Crusher above) was placed in the drum. A steam or electric motor turned the mechanism via the belt on the right. Inside the drum are two metal plates. The bottom one, about two inches thick, is stationary. The top one is connected to the turning mechanism. The four wheels on the corners would turn the upper plate and create friction between it and the lower plate. The ore would be ground between the plates. Water and mercury was added, which would create an amalgam of gold and mercury that would collect inside the drum. The drum was drained, the amalgam was collected, and then the mercury was retorted off (that is, another process was performed to separate the mercury from the gold in the amalgam).

This was found at the Nellie Bly mill in the Magnolia town site.

Separators

Tungsten/Magnetic Ore Separator

Used in the milling process for tungsten. Tungsten ores here contain a lot of magnetite, which is a magnetic iron ore. After the ore is crushed, the concentrate/face powder is put into the chute on top. The disc on the machine rotated next to two magnets which create a magnetic field, which caught the magnetite. The rotating disc then pushed the magnetite off of the magnets and dumped it to the sides of the machine. The non-magnetic tungsten was not caught, it instead fell into the tray/chute at the bottom on the end of the machine.

It was built around 1910 and used up to the 1950s.

Power Sources

Big five 1898 power House corner stone

Came from the Big Five Mill, located on the Switzerland trail near Ward.

Donated by Charlie Weaver around 2007. When he was quite young, he and his dad went to the remains of the big five mill and pulled this corner stone out and kept it.

Pelton Water Wheel

Most were used hooked up to an electricity generator, but could be hooked up to other things as well, like crushers. A hood is normally put on top of it (we may have the hood somewhere in the museum). A hose of pressurized water (around 200psi) is hooked to one end, the water pushes the cups of the wheel. The giant metal flywheel on the back is used to keep it turning through inertia.

Pressurized water was usually piped in from one or two miles away. The water intake was an 18 inch pipe, it narrowed to1 inch by the time it reached the wheel. This plus elevation drop created the pressure.

Similar wheels are still used today, this one in this condition is very rare and the only known one in Boulder County.

Donated by Binks Rugg, a founder of the museum, in Eldora.

This came from a mill in Eldora. The owner of the mill did not pay his miners for over a month. The miners raided his house and shot him, he died a week later from the gunshot wounds.

Fairbanks Morse Type Z Engine

This is a vintage 1920s Fairbanks Morse hit-and-miss engine. It is 3 horsepower and ran on either gasoline or kerosene. State of the art for its day - it replaced using horses. A belt was hooked up to it to power equipment. It was used to pump water, crush ore, running shaker tables, and running other powered equipment, even washing machines. Ran four or five hours on a single tank of fuel. Cast iron, weighs around 600 pounds (modern 3 horsepower engines

weigh about 50 lbs).

Ran at 300-475 RPMs. Had a particular sound, called hit-and-miss, because you'd hear the engine "hit" on its one cylinder, then when it over-revs it "misses" when the engine briefly shuts off its spark. It's two large flywheels were used for inertia to keep the wheels spinning.

Restored by the Nederland Mining Museum around 2009/2010, over a two year period. Before restoration this was in terrible shape with bad cracking.

Donated by Chip Parfet of Golden. Chip's family was heavily involved in clay mining along the Front Range between South Boulder all the way to Golden, from the 1800s up to the 1970s. Chip was a collector of antique mining equipment.

De Laval Engine

Another hit-and-miss engine, this one is a vertical engine made by the De Laval company, which made machinery for the dairy industry beginning circa 1880's. This was likely built in the 1920s. These engines were originally used for milking cows, but for mining they were used to run shaker tables, small crushers and other mining equipment. This is a single cylinder engine.

The De Laval company still exists, and builds rocket engines, jet turbines and other engine-related machinery.

Donated by Jerry and Marlene Peterson, restored in 1998 by Dan Martin

Various Hit-And-Miss Motors

Different variations of hit-and-miss motors on their original carts. They range from circa 1919 to 1925 (the John Deere is 1925). These were portable power plants that would run crushers, mill equipment, water pumps, electric generators, etc.. These were an improvement over the old steam engines, which took an hour of stoking/heating before they would produce power.

<— This one is a John Deere brand. This was restored around 2002 when it was donated to the museum. Around 2.5 horsepower. Start it by opening the fool valve and then cranking the flywheel with the attached handle.

<— This one is a Cushman brand

Donated by Allison Cross. Her father (in Longmont) was into steam locomotives. This particular engine was Allison's to play with when she was a young girl. Note the license plate on the back that says "Allison". She would take it as a display to train and steam engine shows. Around 2 horsepower.

<— The make of this one is unknown. Unrestored. Around 1.5 horsepower.

Carts and Pumper Cars

One pumper car was given back to its lender. Figure out which one and we'll remove its info from this document

Wood Framed Hand Pumper Car

Dates from the late 1800s. The frame is made of oak. The wear parts and mechanical motion parts are made out of steel. The wheels are solid wood discs strapped with steel and with square bolts.

Donated by Kent (or Norm? He uses both names) Blake from Black Hawk. Restored in the 1970s.

Steel-Framed Hand Pumper Car

Used to get in and out of a mine quickly, often during shift changes. They carried multiple tools and up to eight people. While railroad hand cars required the riders to stand and use arm motion for power, because of the low ceilings in mines, these were designed to sit where put to four miners used both arm and leg motion to power the car. They could reach speeds up to 40 mph. It has a steel frame and solid steel wheels. Based on the steel construction, this one was likely built sometime between 1905-1925.

Donated by Kent (or Norm? He uses both names) Blake from Black Hawk. Restored in the 1970s.

Half Ton Ore Cart

From circa 1901 (NAHS says it dates from the 1880s or 1890s), with rivet construction, rounded edges and crude wheels. Runs on 18 gauge track. A lever on the back opens the door in the front, and allows dumping like a wheelbarrow, but also dumping from side to side. Used in a mine in Eldora. Used by very small operations.

It was pulled by a mule or mule skinner, or possibly a handcart.

This cart came from/was used in Eldora.

Donated by Earl and Barbara Bolton in 2006. Barbara's great grandparents? ran a stage line in Eldora.

Three-quarter ton ore cart

Dates from circa 1880. It was built in Denver. This ore cart is constructed using rivets, and it has no wheel bearings— the axle and wheels are directly connected with a cotter pin (and lubricated with grease). It would hold 3/4 of a ton of ore. Later models used wheel bearings in a protected case that kept them away from the water and dust of the mine, and they rolled much better than this older one. This one has a lever on the front that would open a door on the opposite side for dumping. When the lever was pulled you could also rotate the cart 360 degrees before dumping.

This was used to move ore out of a horizontal mine shaft (called a drift) on top of track. In the early days it was 18 gauge (that is, 18 inches between the insides of the tracks), later 24 and 36 gauge, occasionally 28 gauge. Larger gauges allowed bigger carts. Before blasting, miners laid down a slick sheet. The muck would land on it, and they would shovel it into the cart. The slick sheet made the shoveling easier. In the early days they were moved with mule skinners - a mule was lowered into the shaft (and often lived there its entire life in appalling conditions) which would pull the carts.

Donated by Dan Martin. He found it in pieces and reassembled it.

Side dump ore cart

Could carry 5 tons (NAHS says 3-4 tons). Used in larger mines, and required gas, electric or occasionally compressed air powered underground locomotives to pull. Wheels use enclosed greased wheel bearings instead of open axles. Had to be completely filled because it used to center of gravity to dump, from the side only. Dates from circa 1929; most of these were scrapped for the World War II effort.

Donated by John Sainsbury.

Used up in Jamestown, possibly from the Wano mine.

Hoisting

Bluebird Mining Hoist/Winch

This is a steam hoist (or winch) from 1890. It was used to lift everything into and out of the mine— from ore, to miners to mules (attached to harnesses). It was built in Denver by the Hendrie & Bolthoff Manufacturing & Supply Co. This a larger hoist, weighing 7,000-8,000 pounds. It could hold up to 2,000 feet of cable. After it was found the inner workings were examined and determined to be in good condition, with an estimated 100 hours or less use on it. It can run on compressed air.

The job of a hoist man: these hoists were the lifeline for miners below in case an accident (fire, draining an underground lake, etc.) happened. It was up to the hoist man to get the miner to safety. The miners would often pitch in to buy an elaborate chair for the hoist man—for comfort, but also so the hoist man would be even more inspired to save the miners in an accident. Hoist men could never leave their post. The outhouse was put 15 to 20 feet away from the hoist man's operator station so he would always be near if an accident occurred. You could not talk to a hoist man who is on duty (thus diverting attention away from the hoist), which is a law still in place today. Miners communicated with the hoist operator through a bell, using a system of codes to signal what the hoist operator should do. Men chosen for the hoist man job usually had to be married, went to church on Sundays, and especially did not drink alcohol. Hoist men were well paid and well respected in the community.

This was removed from the Bluebird Mine Complex on Caribou Ranch. It was in a collapsed chicken shed in the late 1990s, before Boulder County bought what is now the Caribou Ranch Open Space.

Due to its good and little-used condition, it was most likely used in a mining scam, where owners would buy big equipment and leave them around the mine to impress potential investors into thinking the mine is producing a lot of gold. It wasn't necessarily used for this purpose at the Bluebird, but it is unknown how it ended up there.

The story of how it was moved from the Bluebird to the museum: Dan Martin and four volunteers spent four to five hours using another winch to pull it onto a trailer. It was removed in the winter, and the roads were slick. When driving back, on a roughly 7% grade road the trailer began to jackknife. Fearing it would crush him, Dan accelerated to reach a dry spot. It fishtailed for 400 to 500 feet before stabilizing. To bring it into the museum they removed the back window and put a crane through with a cable attached to the mining hoist. They then moved it into place using skids underneath.

Crab Winch

This is a hand winch. These were used in very small mining operations, and could lift no bigger than a five gallon ore bucket. The handle could be moved to the other side. These included a safety feature— a metal rod that fell the teeth on the wheel as it is turned. This kept the winch from reversing and dropping the bucket. This dates from the 1890s up until the 1920s-1930s.

Rope

Used on a windlass at the surface (a crank system, like a well with a bucket). A small ore bucket was attached, miners at the surface would crank the windlass, lifting the bucket up, then crank it back down. These ropes are in great shape. Most wore out in a year or two due to usage, the wet nature of mine shafts and weather exposure on the surface.

These particular ropes were found in an old mill (unsure which), and were replacement ropes.

Small Ore Bucket

Used with the rope above to haul small quantities of ore to the surface.

Large Ore Buckets

These were used to carry ore up and out of vertical shafts inside of the mine. Miners would shovel ore into the buckets. A cable hooked to a winch on the surface was lowered down the vertical shaft, once connected the miners signaled the hoist operator to lift the buckets up to the surface, where they were dumped and then lowered back down for more ore.

The buckets came in many sizes and were rated based on the tonnage of ore they could carry. Many were made at foundries and machine shops in Denver. The largest bucket on the right (which according to the tag on it was made in Denver by the Mine and Smelter Supply Company) rates about half to three-quarters of a ton. It is made of high grade steel and has a wear strap around the rim to protect it as it hit the shaft wall when being lifted. The larger one has a "pig tale" hooked to the handle, which is a chain used to connect it to the cable. It could be released easily on the surface.

Hoisting/Lifting Chain

Used to lower and lift heavy machinery into and out of the mine.

Signal Bell and Signal Chart

Used by miners to signal the hoist operator. The signal chart shows a code—a certain count of bell rings and pauses—that tells the hoist operator on the surface what to do with the hoist. This was the only line of communication between the miners in a shaft and the hoist operator on the surface.

Water Pumps

Atlas Water Pump

Dating from 1913. It was used to drain small mines, primarily in tungsten mines. It was originally driven by a steam powered engine.

It was in terrible condition when found, restored by Dan Martin. He converted it to run on an electric motor.

This was found on the Reynolds Ranch (now BCPOS), mostly buried in silt. It was "used in a tungsten mine up on the hillside of the Reynolds Ranch."

Tri-plex Water Pump

This is a piston tri-plex style water pump. It was used to drain a mine or feed water into a small milling operation. This is an early-style piston tri-plex water pump that dates from 1890-1910.

Donated by Steve and Laurel Higgins.

This was found in Gilpin County.

Water Ram

A non-motorized water pump. It works via water pressure/hydraulics. Water coming in creates pressure, the water is then ejected via a hose at the bottom. This could lift water as high as 100 feet. The number 4 on it is the size (number 1's are about 5 times bigger). They were used in mining and mill operations, but also to bring water up to a cabin. These are pretty rare.

Donated by Binks Rugg. It was in terrible condition (rusted) when it arrived, Dan Martin restored it.

This water ram was used at the Mobile(?) Tunnel in Eldora.

Underground Lighting

Underground Lighting Equipment

This case shows various lighting implements, including extra candles and carbide canisters, explained in detail below:

<— This is a candle holder sometimes called a Tommy Stick though that was a name invented for them by antique dealers and not in use when they were used in mining, say other sources we know. In the early days miners used candles. This type of candle holder has a spike of metal and hook. The miner would light a candle on the holder, then jam it in a crack in the wall or timber with the spike, or hang it with the hook. Miners generally only had enough candles to light for six hours of an eight to ten hour shift. In the two hours without light, miners would eat lunch. Some Cornish miners would work in the dark hand drilling.

<— Around 1901 carbide lanterns were invented. These are brass lanterns with a reflector. They would mix carbide and water and light it with a flint. The chemical reaction created a brilliant light. The lanterns could be hooked to your belt, or to your hard hat so you could work hands-free.

Battery Packs and Lights

These replaced carbide lanterns, and were preferred because unlike candles and carbide, they did not require open flames. The battery pack was attached to a miner's belt on their side, and the light itself to their hard hat. The miner could easily switch the light on and off. The batteries were deep cycle or nickel cadmium batteries.

Electric Battery Pack Charging Station

Used for recharging the battery packs for miner's lighting systems. At the end of their shift the miners would place their spent batteries in one of the slots, where they would be recharged in time for the beginning of their next shift.

Boxes and Canisters

Dupont Dynamite Box

A box for dynamite. Around 1928 Dupont stopped labeling these as "dynamite," instead using "explosives." Dupont was one of the, if not the biggest, dynamite producers. This is how they labeled their boxes from circa 1910, when they started producing their own, until 1928.

Giant (Brand) Dynamite Box

Another dynamite box. Atlas and Giant were the same company. This box is relatively late. It says "Geladine", which is a specialized explosive product specific to underground mining. These special formulations came in around the 1930s.

Nailed Dynamite Box

This box says "EXPLOSIVE DANGEROUS." This one, unlike the others, is nailed together, signifying that it is older. Dynamite boxes were nailed together until around 1905. The Railroad Commission, which governed how materials were packaged and shipped on railroads, decreed that dynamite boxes could no longer be nailed together because they were too flimsy. This one's lettering is also crudely stenciled.

Newer Dupont Dynamite Box

This one is labeled "HIGH EXPLOSIVES - DANGEROUS. In 1913 the Railroad Commission decreed that dynamite boxes needed to be labeled "HIGH EXPLOSIVES – DANGEROUS." It also says ICC-14, which stands for Interstate Commerce Commission 1914. This was the commission that said, starting in 1914, you had to label boxes "HIGH EXPLOSIVES – DANGEROUS." Blasting powder, which is different than dynamite, was ICC-13.

American Cyanamide Blasting Caps Box

Eric acquired this from a flea market in San Jose, California (unsure where it came from before that).

Atlas Powder Co. Box

Circa 1950s. Eric called this an “Amadine box” after reading the side. He got it from California.

Blasting Caps Box

This appears to have a Dupont logo on the side? Circa 1930s-40’s. Perhaps from Georgetown.

Carbolite Canister

Time Stamp: TWITTY 30:59

Circa 1920s. Eric acquired this in eastern California.

Sunlight Canister

Time Stamp: TWITTY 31:47

A canister that says “sunlight.” Eric got this in eastern California.

Union Carbide Canister

Eric got this in Nevada.

Nitroglycerin Canister

Nitroglycerin was very rarely used in mining, but was used a lot in oil. Eric thinks this came from an antique shop in Lyons.

Dynamite Thawers

Dynamite Thawing Box

If dynamite was detonated while frozen (below 40-50 degrees Fahrenheit in temperature), it might not go off, it might only go off half-way, or some would burn, producing toxic gases. Miners had many ways to thaw dynamite, including carrying it in their pockets. Some organized companies would provide thawing boxes, like this one. It's also calls a "bi-kettle"(?) box. Mine blacksmiths who knew what they were doing could make these. This one had a 50 pound capacity—the same as the dynamite boxes. It is considered an unusually large thawing box compared to most. It has handles on the sides with which miners would carry it into the mine. This one has been somewhat soldered back together by a tin smith in Cripple Creek, but the metal was so stretched that he could not put it all back together properly. This one is circa 1890s.

It is a double-walled vessel. The dynamite was placed inside the inner chamber. Hot water was poured in the port on the top right side, which filled the outer chamber. It would sit and thaw the dynamite. The second photo shows the box with its lid on.

This one came from the Creede mining district in Colorado.

Rundle Thawer

This is another style of dynamite thawer. Rundle thawers were patented in the 1880s and made up to circa 1900.

By the 1920s, explosives manufacturers were making "no freezing" dynamite that had some sort of antifreeze in it, so thawing boxes were no longer needed.

Maps

Map and frame, 24 x 24, Nederland and Beaver Creek mines

Hand-drawn map of mines a long beaver creek, south east of Nederland, dated 1916. Originally created by the county. Donated by Glenna Carline from NAHS.

Map Case

Used by surveyors who were surveying to patent a mining claim. They would carry maps of the area in this case on their side, keeping them waterproof from the weather. This acted as their “field kit.”

Town Life

Goldie's Bar

Made of quarter-sawn oak. Goldie Cameron had two bar/cafés in Nederland, the first called the Branding Iron and the second called Goldie's Corral. This bar was believed to be used at both establishments. The bar was built in the 1890s, but it's unknown when and from where Goldie acquired it.

Donated by Maryane Rodac, a local business woman who bought the building the bar was in.

Goldie Cameron: she was part of buffalo bills circus as a rough rider, doing tricks and lassoing. She and her husband were married in Madison Square Garden at one such show.

Luggage Cart

Used at a train depot. A line of these were lined up against the train to add or remove luggage.

Donated by Mark Slinger.

It was found in Gilpin County around 2005.

Photographs and Pictures

Nederland Photograph

The photo was taken in 1914. Barker Dam was completed a few years earlier, and you can see the water backed up on the left side. Donated by Brownlee and Lois Guyer. It includes some points of interest:

<— The old movie theatre

<— Sneider's (?) Garage (which may still exist? Or the building does?)

<— Hetzer (?) Hotel (roughly where Kathmandu is now)

<— The original Caribou mill, which burned down in 1926. It was rebuilt in 1927 directly to the east of the

foundation, and was renamed at some point after that as the Wolf Tongue Mill.

<— The Boulder Mill. This mill had a waterwheel, which you can make out in the photo. This location is present-day Chipeta Park.

<— A very early Victorian-style house, owned by the Hetzers (?). This house was moved up to the Big Springs subdivision and restored, where it still stands today.

Miner Picture

Owned for many years and donated by Brownlee Guyer. The identity of the miner is unknown, but there are theories:

It could be Betty Moser's son, who runs the Idaho Mill (there are "strong opinions" that this is him).

Mining Competitions

Mine Competition Cabinet

Various trophies and awards won at mining competitions by Tommy Williams, including world championship competitions at Carson City, NV. This display may still be on loan to the museum by his daughters.

Tommy Williams (a "handsome man" who attracted many women), from the Williams family, a large Boulder family that did a lot of mining and ranching locally. Tommy was big into the mining competitions.

Tommy worked in the Glory Hole in Central City. A poem was written about him after his heroics saved several miners in an accident.

Mining Competition Poster

This poster advertises a mining competition in Nederland. Back in the late 1800s Nederland held the world championship mining competitions. Miners would come from all around the western US to compete in single- and double-jack drilling competitions. This poster is for the 1916 world championship. The $300 first prize was equivalent of one and half years of wages. Boulder county for many years held the world championship competition, and produced many world champions. A recent world champion is Emmit Hoyl, from Boulder County. His great-great grandfather was the first engineer to arrive in the 1859 gold rush. In the late 1960s the world championship moved from Boulder County to Carson City, NV.

Donated by Betsy Burton and Matt Phillips.

This poster was found in a cabin in Eldora, where it was being used for insulation. This is the only known poster for this event in existence. When found it was torn into pieces, it was since restored.

Again, this was found in a cabin in Eldora. The owner of the cabin also owned a mine (they can't remember the name of it).

Tools and Blacksmith

Tool Collection

This is a collection of tools and pieces of tools. It includes blacksmithing tools, assay tools, and picks, shovels and other tools used by miners working for grubstakers. Some of it was moved to AOM.

Grubstaking is when an investor pays a grubstake to a prospector to find a new mine. The prospector keeps a percentage of the found mine, but the grubstaker (investor) keeps the majority.

Donated by Roland Wolcott; the Wolcotts were a pioneering mining family in the area.

Blacksmith Implements

The tools in the photo are all sitting on a blacksmith forge. To the left is a mechanical/hand-cranked blower. There is also a sack of coal.

The NAHS video is unclear if these items were donated by Roland Wolcott.

Bellows

Early 1800's blacksmith's bellows (probably around 1870). It is used to stoke a fire with oxygen, getting it hot enough to manipulate steel. It was mounted below the forge and used either a rope above or a foot pedal that was hooked to it that when pulled or pressed caused to bellows to open and close. It is made out of wood and leather, the latter of which is dry-rotted from years of use. Painted with red lead paint,

and built with square head nails. Normally would have a brass or copper nose cone on it that could withstand the heat of the fire (and protect the wood bellows from burning), but it is missing on this one.

This bellows came out of the blacksmith shop at Cardinal (the mill and mine are owned by Boulder County but the blacksmith shop is privately owned, but the owner donated the bellows).

Assay Office

Assayer's Display Case

Found in the front of assay offices. The small slots each had high grade ore samples in them, each slot having ore from a different mine along with a tag from which mine the ore came from. These were geared towards showing off goods to prospective mine owners. Compartments behind the slots and the cabinets underneath would hold larger sacks of ore from those mines. The cabinets underneath are lined with galvanized sheet metal to prevent damaging the wood when ore is added or removed. This one is believed to come from the 1890s or early 1900s, and seems to be an unusually large case.

Donated by the Immal brothers (Ray and Don).

Crucible

Used in the assay process. The assayer would put a sample of ore in the crucible, then grab tongs to roast it in a furnace up to 2,000 degrees. The rock would smelt off, leaving the precious metal (usually gold, silver or platinum) behind. These could take the extreme heat because they were made of bone ash.

Donated by Mabel Anderson

Blow Pipe

Used by assayers to burn small ore samples. The color of the flame gave assayers evidence for the ore's contents.

Cupels

Pronounced “koo- PELS”—a French word. Used in the same fashion as crucibles. The final product was smelted in the furnace inside of these at up to 2,000 degrees. The lesser metals were absorbed into the bone ash of the cupel, leaving a button of the precious metal (gold, silver, platinum) behind. Based on the button left behind, the assayer could calculate how much of the precious metal per ton of ore the mine’s samples produced. This was useful for mine owners who want to know how much gold or other precious metals are in an ore body being actively mined.

Miscellaneous Assay Equipment

The NAHS video gives a brief description of “other tools the assayers used.” Includes mention of small grinders the assayer used to grind up ore samples for use in crucibles and cupels. The equipment in the center of the photo may be such a grinder; the video is unclear.

Assay Oven

Ovens were used by assayers to heat ore samples. Original ovens were fire-brick, but this later oven was electrically powered, and could achieve temperatures as high as 3,000 degrees. The assayer would place the crucible or cupel inside and slide down a door over the opening. When the sample achieved the required temperature, the assayer would pull the sample out and assay the amount of precious metal in the sample.

Minerals and Ore Samples

Ferberite Tungsten Ore Samples

Very rare and extremely high-grade ore samples and geologic specimens donated by old-time local mining families.

Mineral Collection

This is a collection of ore samples donated by many different families, but primarily it is comprised of the Al McGowan collection. Some of the collection also is from the William Fritz collection.

Ore Samples

Ore samples of the Wolcott collection donated in 2012.

Miscellaneous and Unsorted Artifacts

Neuscheller Stand and Furnace
Likely at the AOM and not NMM

Retort was a process to separate amalgamated gold and mercury. This must be a setup to do this. Neuscheller was an assayer so it is perhaps assay equipment? Not pictured: Dan begins to mention something that is glass before the video cuts out.

<— This is the stand for it.

<— This is the furnace for it

<— This is the retort (on the left of the box?)

Miscellaneous Bins
These are likely in the upstairs closet at AOM

The green bin with ore sacks are extras from the Roland Wolcott collection. The green cooler contains extra ore samples from the Al McGowan collection.

Assay Equipment
Many of these items were likely moved to the AOM or POS Archive Room before BCPOS opened NMM

Donated in 2012 by Roger Neuscheller, who was an assayer his entire life. This was uncatalogued when Boulder County Open Space acquired the museum.