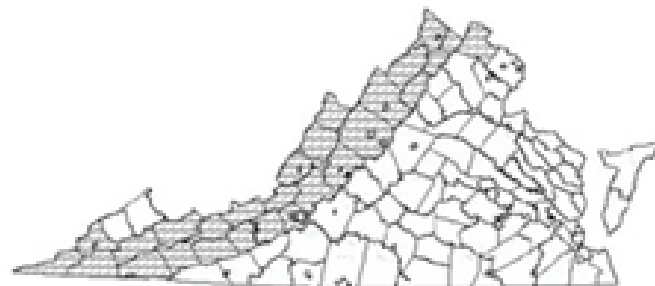

VIRGINIA CAVE OWNERS' NEWSLETTER

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A PUBLICATION OF THE VIRGINIA CAVE BOARD, DEPARTMENT OF CONSERVATION AND RECREATION NO. 26, MARCH 2014

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Thanks to contributors: George Bowers, C. Stuart Daw, Bob Denton, Charles E.A. Finney

LAST ISSUE! You are holding the **last printed** *Virginia Cave Owners' Newsletter*. The Virginia Cave Board will continue to publish the newsletter electronically only. **Please email us to make sure we have your current email address** (Larry.Smith@dcr.virginia.gov). We welcome ideas for articles. Back issues are online at http://www.dcr.virginia.gov/natural_heritage/cavehome.shtml.

CHAIRMAN'S COLUMN

by Meredith Hall Webers 

Greetings, Virginia Cave Owners!

Working on the Virginia Cave Board continues to excite me. We are getting close to having the website for the Virginia Cave and Karst Trail (VCKT) go live. This statewide driving/walking trail will provide our citizens and visitors with the chance to learn about caves and karst and see some amazing scenery, both above and below ground. Keep checking with the Cave Board website, listed below.

We have also adopted karst assessment guidelines written by a couple of Cave Board members

(article on page 4). These are the first in the nation to be promoted by an advisory board such as the Cave Board.

Another special event the Cave Board promotes is Virginia's annual celebration of Cave Week, this year from April 20 to 26.

Special thanks go to Woodstock resident George Bowers for permitting us to reprint a poem he wrote several years ago.

And special thanks also go to C. Stuart Daw and Charles E.A. Finney of the Cave Research Foundation for writing about

(The small graphic next to this article title is the cave map symbol for columns, speleothems that are formed when a stalactite grows down and a stalagmite grows up, and they meet in the middle.)

what is going on in Cumberland Gap National Historical Park, most of whose caves are beneath Virginia.

If you as a cave owner have questions or needs, please contact any of us on the Cave Board. We are here to help! You may reach us through Larry Smith, our advisor at the Virginia Department of Conservation and Recreation, Larry.Smith@dcr.virginia.gov.

Thanks, as always, for taking good care of the caves of the Commonwealth!



We're on the Web! Visit us at:
http://www.dcr.virginia.gov/natural_heritage/



VIRGINIA CAVES

By George Bowers (3/06)

Have you ever thought what a gift God gave
 When He gave to us the deep dark cave?
 Virginia has a healthy share,
 With beauties great and treasures rare.
 Found with limestone karst and old
 Filled with splendor and beauty untold.
 Shafts and tunnels, tight spots and more,
 Great halls and chambers for us to explore.
 On the surface, deep sink holes
 While down below, spelunking souls.
 Usually cool at fifty-four
 Filled with stories and ghosts and lore.
 All different types of unique flowstones,
 Bacon and eggs, curtains and bones.
 From long and narrow soda straws
 To crazy white, rough, popcorn balls.
 Hanging from ceilings are great stalactites,
 While up from the floor arise stalagmites.
 When they meet they form a column,
 Standing guard, silent and solemn.
 Hanging drapes without a rod,
 Designing done by the hand of God.
 Some have shields or minerals bright,
 All under ground and out of sight.
 Often it's muddy, easy for slipping,
 And deathly quiet except for dripping.
 Each cave has its own bragging rights.
 Like Skyline's perfect anthodites.
 Grand is the oldest US show cave,
 The first to make folks rant and rave.
 And in big Luray an organ sounds.
 While Endless seems to have no bounds.
 Close by a field of the Civil War pistol,
 Lays a caverns named the Crystal.
 And one that carries the Valley's name
 Shenandoah has its own great fame!
 Dixie too and Natural Bridge,
 Hollowed out beneath a ridge.
 And a thousand more not open for touring,
 Call to us and are alluring.
 Now go and visit one today
 And thank your guide who shows the way.
 Treat our caves with respect and care.
 And thank the Lord who placed them there.



CUMBERLAND GAP CULTURAL RESOURCES PROJECT OF THE CAVE RESEARCH FOUNDATION

By C. Stuart Daw and Charles E.A. Finney

As part of a Memorandum of Understanding with the National Park Service (NPS), members the Cave Research Foundation (CRF) are working to uncover the rich and complex legacy of human activity in the caves of the Cumberland Gap National Historical Park (CGNHP). The cultural resources investigation is part of a larger volunteer effort by the CRF to assist the NPS in documenting the unique cave resources in the park.

The CGNHP, dedicated in 1959, is the largest national park of its type in the country, covering 24,000 acres of mountainous terrain at the intersection of Virginia, Kentucky, and Tennessee. It is centered at Cumberland Gap, which was a natural focal point of both prehistoric and historic migrations of Native Americans and early European settlers. The artifacts and graffiti we see in the numerous park caves provide a time-capsule glimpse of those intrepid individuals who took time to visit the caves. The remarkably stable cave environment preserves these features for hundreds and even thousands of years with little or no deterioration. Almost all CGNHP caves lie within Virginia because of the topography.

The CRF cultural resources team is closely coordinating its efforts with the CRF survey teams, which are meticulously mapping the park caves to locate the positions of all important geological, biological, and anthropological features. Such mapping is extremely challenging because it has to resolve complex, 3D underground terrains without the use of satellite-based positioning systems. Much of the recent CRF effort has been focused on the largest cave in the park, referred to as the Cumberland Gap Cave system. As of 2013, the extent of surveyed passage in this cave was approaching 18 miles.

Some of the most important cultural features being documented by the CRF include graffiti and physical artifacts like torch fragments, bottles, and articles of clothing left by earlier visitors. The documentation techniques we use include those common to archaeology, such as visible-light photography and careful manual measurement, combined with background research into relevant genealogical and military records. We are also experimenting with new measurement tools such as ultraviolet and infrared photography. All important features are located as precisely as possible to known stations on the CRF survey maps. Both graffiti and



physical artifacts are always left in place 'as-found,' except that warning tape is sometimes used to mark features that might need special protection.

Many of the most significant cultural features documented by the CRF so far date from the early 1800s and years surrounding the Civil War. In some of the most interesting cases, it is possible to link cultural in-cave features with specific individuals who can also be traced in historical documents. One such case is that of Stephen Keyes Fletcher, who was born in 1840 into a prominent Indianapolis family. Stephen served in the 33rd and 115th Indiana infantry regiments during the Civil War and was one of the many Union soldiers posted at the Gap in 1862 and 1863–1865. There were few serious engagements in the Gap, although it is estimated that as many as 25,000 soldiers (both Union and Confederate) were stationed there over the course of the war. Like many of the other soldiers, Stephen (whose photo is

depicted below) spent much of his free time exploring the caves in the area. We have found two places in the Cumberland Gap Cave system where he left his characteristic cursive soot signature on the walls (see figure). Fortunately for us, Stephen also wrote extensively to his family about his adventures in Gap Cave, and he kept a journal. In one letter he explained how he became lost and was only able to exit the cave when other soldiers happened to come his way, after his sole light source, a single candle, ran out. A related account from his journal is included below.

Investigations to date have revealed that it will probably take decades of intensive work to fully document the massive cultural resources contained within the Gap Cave system and the many other caves in the CGNHP. The CRF cultural resources team feels especially privileged to be a part of this effort, and we very much look forward to our continued partnership with the NPS.

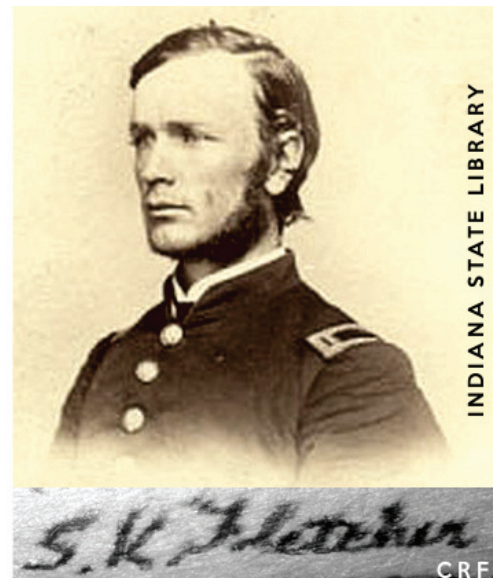
Acknowledgements: The authors are very grateful to the NPS personnel who have assisted and guided the CRF cultural activities at CGNHP over the past 5 years, especially Biologist Jenny Beeler, Historian Martha Wiley, and Superintendent Mark Woods. In addition, Mike Crockett and Dave West have played a critical role in interfacing between the CRF and NPS. Finally, the progress of our cultural resources investigations would not be possible without the dedicated service of a host of team members including Thor Bahrman, Micah Davis, Mary Gratsch, Jimbo Helton, Russell Lawson, and Joe Settles. The journal excerpt is taken from the *Indiana Magazine of History* 54(2): 141–190 (excerpted pages 175–176). The authors thank the Indiana State Library for permission to reproduce Fletcher's portrait herein.



One big chamber covered about an acre & a half of space. We could not throw across it, nor throw nor see to the top. The rocks seemed to have tumbled in from the top from some great concussion earthquake or something forming a perfect conglomerated mass of big rough ugly rocks. In this chamber I got lost. I had very foolishly gone in by my self & if some of the boys hadnt have come in after me, I probubly would have staid there by my self. ...

The Mts here are full of caves, *are all hollow.* & Some day I want to come down here & explore them.

INDIANA MAGAZINE OF HISTORY, vol. 54, no. 2, p. 175, 1958.



Excerpt from the journal of Stephen Keyes Fletcher, his portrait, and his candle-soot signature on a wall in the chamber he describes in his journal. [Portrait used with permission of the Indiana State Library; photograph has been cropped and contrast-enhanced.]



VIRGINIA KARST ASSESSMENT GUIDELINE NOW AVAILABLE

By Robert K. Denton Jr., CPG, LPSS (Senior Geologist)

The first state-wide guideline for karst assessments is currently in the process of review and finalization by the Cave Board. The brainchild of Board members Bob Denton and Dan Doctor, the guidelines address the need for a set of minimum standards that would be required of engineering or geology consultants when evaluating a site for development.

The assessment of karst conditions and potential karst geohazards prior to residential and commercial development is currently in its infancy, from a scientific aspect. Most karst features at proposed building sites are dealt with using an approach wherein the "symptoms and conditions" are treated (for example, sinkhole remediation) often only after site development activities have commenced. If karst hazards are suspected, roadways, foundations, and specific at-risk areas

may be investigated using various geophysical methods; however the results of these investigations require specialized knowledge to be interpreted and understood. Thus stakeholders without geological training may find the investigator's results indecipherable, often leading to unnecessary and expensive supplemental studies, the need for which is entirely based on the nontechnical stakeholder's faith in the investigator's judgment.

In contrast, a trend among consulting firms in recent years is to attach cursory karst "assessments" to due diligence study reports, particularly Phase I Environmental Site Assessments. These combined assessments are often performed by individuals who are inexperienced in geology and lack training in karst geology. Not unexpectedly, this can lead to numerous mistakes, errors, and oversights. More

troubling, these studies often report a lack of karst risks at the site under study, a result that the stakeholders may initially embrace, but which later can result in substantial financial loss and/or significant threats to human health and the environment.

To address these concerns, the Cave Board has proposed a proactive, "preventative" standard practice for karst assessments. Ideally, this proactive approach will help to delineate potential karst hazards so that they can be avoided, managed, or corrected by remediation. Requirements for investigators, a proposed scope of services, fieldwork and data review checklist, and a template for a follow-up karst management plan are included in the new guideline document, which is available at the Virginia Cave Board website: http://www.dcr.virginia.gov/natural_heritage/cavehome.shtml



For more information please contact the Virginia Department of Conservation and Recreation, Division of Natural Heritage, 600 East Main Street, 16th Floor, Richmond, VA 23219 or one of the members of the Virginia Cave Board: Ms. Michele Baird, Ms. Ruth Blankenship, Mr. Robert Denton, Dr. Daniel H. Doctor, Mr. John Graves, Dr. John Haynes, Mr. Richard Lambert, Mr. Steve Lindeman, Ms. Marian McConnell, Ms. Janet Tinkham, and Ms. Meredith Weberg.

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