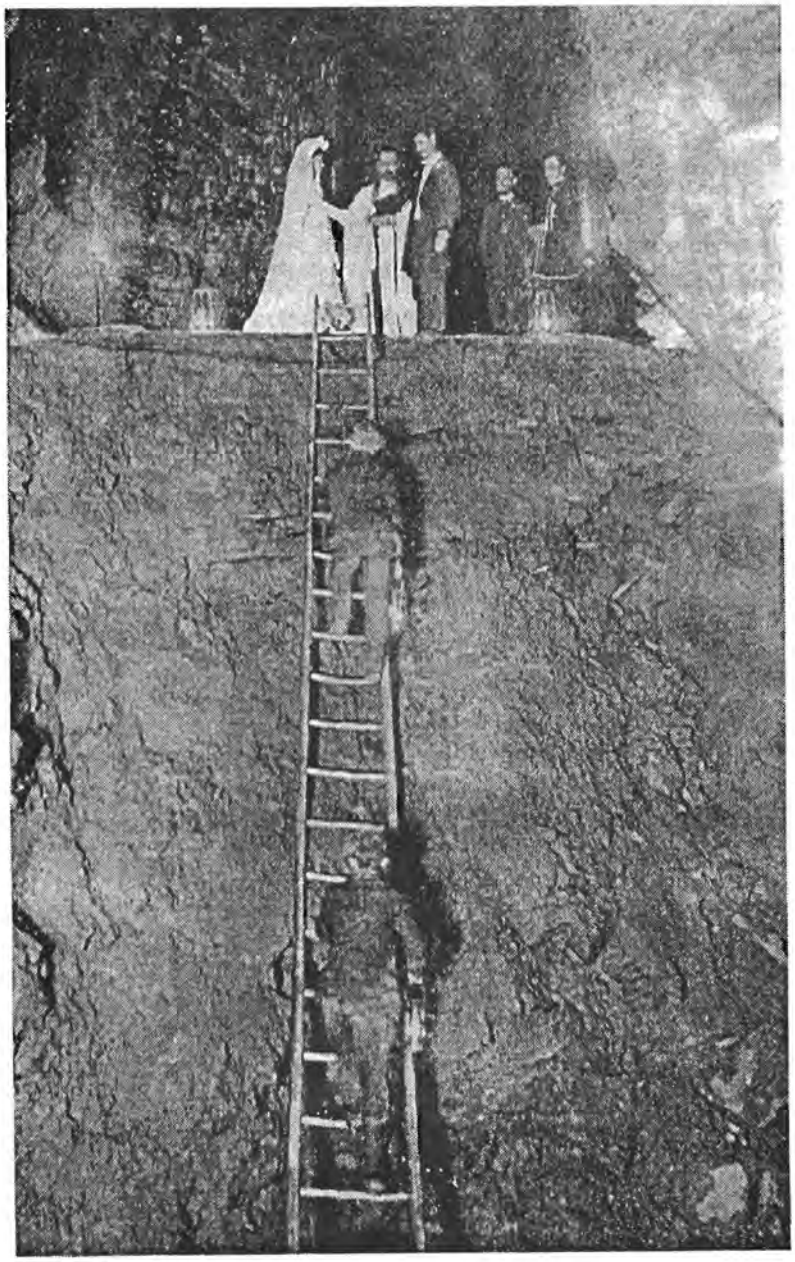
104

The Journal of Spelean History

OFFICIAL PUBLICATION OF THE AMERICAN SPELEAN HISTORY ASSOCIATION



Volume 30, No. 4 #104 October-December 1996

THE JOURNAL OF SPELEAN HISTORY

Volume 30, No. 4 **October-December 1996**

The Association

The American Spelean History Association is chartered as a non-profit corporation for the study, dissemination, and interpretation of spelean history and related purposes. All persons who are interested in these goals are cordially invited to become members. Dues of $8 are due January first of each year. Meetings are held in conjunction with the annual convention of the National Speleological Society and sometimes at West Virginia's Old Timer's Reunion.

Front Cover

Photograph taken in Howe Caverns, NY in the 1800s. It is supposed to be of Elgiva Howe's marriage to H. S. Dewey in what is now called the Bridal Chamber. See Chris Howes' article on page 111 for the story behind the photo.

Officers

Trustees

The Journal of Spelean History

The Association publishes the *Journal of Spelean History* on a quarterly basis. Pertinent articles or reprints are welcomed. Please send typed manuscripts to Carolyn E. Cronk at address below. Photos and illustrations will be returned upon request.

Back Issues

Most back issues of the *Journal* are available. Early issues are photocopied. Indices are also available for Volumes 1-6 and 13. Send your requests to Fred Grady (address given with the officers). All issues of Volumes 1-7:2 are available on microfiche from:

Kraus Reprint Company
Route 100
Millwood, New York 10546

Official Quarterly Publication
AMERICAN SPELEAN HISTORY ASSOCIATION
History Section
National Speleological Society

Production

Editor: Carolyn E. Cronk
1595 Blueberry Hills Rd
Monument, CO 80132

Proofreading: Robert N. Cronk

Printing: D. C. Grotto
Potomac Speleological Club Press

SHELTER FROM THE ATOMIC STORM:

THE NATIONAL SPELEOLOGICAL SOCIETY AND THE USE OF CAVES AS FALLOUT SHELTERS, 1940-1965

by Joseph C. Douglas

On Sunday, March 19, 1961, eight members of the Huntsville, Alabama Grotto of the National Speleological Society (NSS) set off on a trip to visit historic Sauta Cave. These cave enthusiasts, led by well-known explorers Bill Varnedoe and Bill Torode, drove west from Huntsville into neighboring Jackson County and parked near the Tennessee River. They hiked a short distance to the large, lower entrance of the cave, only to find that other people had their own, quite different, interests in the underground environment. Varnedoe and Torode later wrote, "[a]t the entrance we met our first surprise, a contingent of some 30 soldiers, trucks, compressors, bulldozers, etc. [It s]eems that the owners, Beeton and Buchannan, have given the National Guard permission to use the cave as a Fallout Shelter. On Sundays, the Engineer Battalion of Guntersville constructs roads, paths, lights, waterlines, etc. into the cave."[1]

The awkward encounter between cave explorers and the Corps of Engineers which took place at Sauta Cave that Sunday is an apt metaphor for the relationship between the organized caving community and federal, state and local Civil Defense authorities during the first half of the 1960s, when government officials implemented a program to utilize America's caves as fallout shelters.

This paper examines the genesis and evolution of the idea of using caves as fallout shelters from World War II to 1965. Civil Defense authorities were attracted to caves by facile evaluations of the economic and locational advantages of using existing underground spaces, and propelled by political considerations. In the early 1960s, officials ignored previous studies which outlined the problems of using caves as fallout shelters, and implemented a hastily conceived and poorly designed program, which affected hundred of caves across the nation.

Although not conscious of the fact, the government's interest in the utilization of caves for fallout shelters was the last phase in its historic mode of interaction with the underground environment. Governmental interest in the cave environment from the Revolutionary War through the early 20th century was sporadic, and primarily occurred in the crisis of war. Although previous exploitation of the cave environment was geared toward the production of saltpeter for gunpowder, and the fallout shelter program was geared toward protection from advanced weaponry, the fallout shelter program was also a product of crisis, the permanent crisis of the Cold War. While the idea and the sense of crisis had been around for years, it was only when President Kennedy gave strong political support to a general shelter idea that the cave fallout shelter program, a modest part of a broad shelter plan, was implemented. The cave fallout shelter program is perhaps the clearest example of the United States' willingness to sacrifice a specific environment to meet the strategic and political imperatives of the Cold War.

Because of this, the cave fallout shelter idea and program is an ideal place to examine the evolution of the National Speleological Society. This paper focuses on the attitudes and actions of the NSS towards the cave fallout shelter concept and can identify two contrasting attitudes within the cave user community. In the 1946 to early 1950s period, the NSS co-operated with government surveys and studies of caves as potential blast and radiation shelters. Although some individuals hoped the studies would never be needed, the NSS supported the concept of using caves as shelters. The Society used its working relationship

with military officials for self-promotion and to assert its expertise on all questions concerning caves.

However, by the 1960-1965 period, the NSS opposed the cave fallout shelter program, though it was reluctant to totally denigrate the program, fearing it would lose the influence it derived from its acknowledged expertise on the underground environment. The National Speleological Society made the strategic decision to oppose the use of caves as shelters upon practical rather than conservation grounds, though in fact the organization was much more of an environmental group that it has been in the 1940s. While some of the differences in the NSS's position from the 1940s to the 1960s can be attributed to organizational needs and the infusion of new leadership for the group, the most important change was in the attitudes of the Society's members and leaders concerning the conservation of the cave environment.

In the mid-20th century, Americans and their governmental bodies, created another way of interacting with the cave environment, focused upon preservation. This new form grew slowly throughout the century, and was sufficiently strong by the 1960s that it challenged the exploitation mode. Thus, when cavers argued (as they occasionally did) against the fallout shelter program on conservation or preservation grounds, they represented the challenge of the new form of interaction with caves to the older, dominant form. The cave fallout shelter program ran aground on the shoals of practicality and a new conservation ethic. When the broad fallout shelter program died from public apathy and a lack of congressional support, the cave fallout shelter program died along with it. The positions of the NSS demonstrate the growth of a conservation ethic. Virtually non-existent in the Society at its creation in 1941, by 1961 this ethic dominated the Society. Thus, the critical period in the history of the NSS was the 1950s. During this decade the Society grew in numbers and spread across the country, but it was also at this time that the conservation ethic arose and grew.[2]

The genesis of the fallout shelter program of the early 1960s lay in World War II, when the United States government began to study the use of caves for national defense purposes. The fledgling National Speleological Society, and its antecedent organization, the Speleological Society of the District of Columbia, co-operated with government officials in the wartime study and exploitation of the cave environment.

It was William J. Stephenson, a government patent examiner and the founder of the Speleological Society of the District of Columbia, and in 1941, of the National Speleological Society, who first brought forward the idea of utilizing natural caves as shelters from air attack. In a letter dated August 22, 1940, to the Chairman of the Advisory Committee to the Council of National Defense, Edward R. Stettinius, Jr., Stephenson outlined four potential wartime uses for caves. The second of these was "as air-raid and permanent shelters for evacuated civilian population[s]."[3] The other uses he mentioned were also important. These included storage of strategic materials, factory sites, and prisoner-of-war camps. The Advisory Council took all of these, except the latter, quite seriously, and during and after the war, studied the proposals in detail. Stephenson was subsequently contacted by the Director of the Planning Branch of the U.S. Army, and the Army Corps of Engineers, and investigated for security clearance. Then he and his associates in the NSS worked on a number of wartime projects which touched upon caves.

These projects included plans for the use of caves to store cultural materials from the National Archives, consultation on foreign caves for Army Intelligence, reports on domestic caves for Army engineers, cave map work with the Army Map Service, work on underground industrial development with the Army Air Corps, and consultation on the

underground food storage program of the Department of Agriculture. The NSS also furnished caves and expertise for experiments in blasting cave entrances shut, which proved important in the Pacific island-hopping campaign.

In sum, the NSS and the United States Government forged a close working relationship during the war years. Neither the government nor the organized caving community showed any concern about using the underground environment for military purposes. By the end of the war the Society had emerged as the foremost authority on caves in the nation. Although the wartime projects remained secret, even from much of the membership, the Society's war activities were used to assert its expertise and to attract members in the post-war years. While natural caves were not employed as bomb shelters in the U.S. during the war, the study of national defense usage of the cave environment had begun. The seeds of the fallout shelter program had been sown. The NSS helped plant those seeds.[4]

After the end of World War II, the government's interest in caves waxed rather than waned. As William Stephenson put it, in a fundraising and membership drive brochure issued in the spring of 1947, "[s] ince the termination of hostilities, the interest of the Armed Forces in the work of the Society has increased rather than diminished. The Society must expand its operations. . . so that complete information concerning cave locations, conditions, and methods of use will be immediately available in case of future National emergencies." [5] This increased interest can be traced to two factors. The first was the realization by the U.S. Army (especially the Army Air Corps) that other nations had used caves with some success during the war. The second was the development of atomic weaponry, which intensified and highlighted the need for deep, sturdy shelters for military and civilian populations. As the Cold War became a reality, the idea of using caves for military ends persisted. For the first time American military officials considered using caves as shelters from atomic blasts. Later, when the deadly nature of radioactive fallout became apparent, caves were considered primarily as shelters from short to medium term radiation exposure.

The U.S. Army was initially interested in caves as protected sites for industrial production. In the years immediately following the war, the Joint Army-Navy Munitions Board, with the assistance of the NSS, conducted a major study of this possibility in 1946-1947. The Army was impressed by the English and (especially) German usage of caves to shield war industries from aerial bombardment,[6] and considered the possibility of moving vital American industries underground. In November 1945, Captain T. W. Hefferan of the U.S. Army Corps asked the NSS for information on caves. The NSS responded by suggesting that a "complete survey of all caves in the country be made."[7]

In early 1946 the Joint Army-Navy Munitions Board set up an Underground Sites Committee (USC) to study caves as industrial sites. The Committee also investigated caves' potential as shelters for the civilian population, although this was not the primary focus of their work. By July of 1946 the USC had begun inspecting major commercial and government-owned caves, such as Howe Caverns in New York and Carlsbad Caverns in New Mexico.[8] The USC also issued requirements for industrial underground sites.[9] The work of the Underground Sites Committee became public in March of 1946 and sparked a flurry of newspaper articles. Some of these articles stressed the use of caves as atomic shelters. This idea became fixed in the public's mind as a result of the massive publicity.[10]

At the same time, the NSS used the publicity to promote itself and assert its expertise. The Society aided the work of the USC and generally (though not unanimously) supported the idea of using caves for atomic bomb shelters. The President of the NSS, William Stephenson, went so far as to say "[e]very cave in the country should be plotted and

diagrammed. The cave is our main hope in an atomic war."[11] Clay Perry, another leader of the Society, stated that '[t]he NSS . . . believes that there is room for the entire population of the United States to hide in deep, safe shelters."[12] Perry went on to recommend Salts Cave in Kentucky as an ideal site. The NSS continued to assist the Underground Sites Committee in its survey of caves, and the Society hosted a symposium on the issue entitled "Strategic, Protective, and Economic Use of Caves, Tunnels, Mines, etc." at its February 1947 Annual Meeting.[13]

Within a few years, the idea of moving war industries into natural caves faded away. This was partly due to a lack of enthusiasm for the concept within the Joint Army-Navy Munitions Board itself, especially from the Chairman, R.R. Deupree, who publicly doubted if it would ever be implemented.[14] Coupled with this was a realization of the tremendous expense the project would entail, its practical difficulties, and signs of public opposition.

Editorial writers, feature article authors, and even the cartoonist Herblock all questioned the wisdom of preparing for another war and skewered the idea as a barbaric "return to the caves."[15] Prominent NSS members also raised objections. Geologist William E. Davies of the Army Map Service tried to dampen the enthusiasm for caves as atomic shelters, saying in a speech at the eighth annual meeting of the American Congress of Surveying and Mapping that caverns are "both inaccessible and generally uninhabitable."[16] However, despite his skepticism, Davies continued to assist the USC's survey of caves. NSS Secretary John S. Petrie stated in a Letter to the Editor in the *Ashtabula Star-Beacon* that he agreed with a previous editorial that "[t]he solution to the threat of the atom bomb is not in going underground."[17] Even NSS President William Stephenson admitted that not many caves met the stringent requirements set by the Underground Sites Committee.[18] These requirements included a level space with prescribed ceiling heights, 50,000 square feet in area, with no streams nearby. By the late 1940s, the U.S. military had given up on the idea of moving industry underground. Citing the enormous cost involved, military planners opted instead for a simple dispersal of key industries.[19]

Although the proposal for moving industry underground died, and no action was taken on creating atomic shelters in caves at the time, the idea of using caves for atomic blast, and later fallout, shelters persisted. Throughout the late 1940s and early 1950s, military officials, politicians, and the press refused to let the idea perish. Whenever a crisis in the Cold War arose, people again circulated the suggestion that caves would make good shelters.[20]

Congress also touched upon the subject. Congressman Rankin of Mississippi facetiously suggested moving the national capital to Paducah, Kentucky, because "it's nearest to the Mammoth Cave, the greatest storm cellar the world has ever known."[21] More seriously, in October 1949 Congressman McDonough of California submitted a bill to Congress calling for the Secretary of Defense to determine the need for a co-ordinated program to install equipment in underground areas to protect the civilian population, or for other military purposes.[22] By the early 1950s the NSS tried to suppress the most outlandish of these ideas, saying that, with minor exceptions, caves were not a viable option, as they were generally inaccessible to population centers.[23]

The NSS supported the military, industrial, and civilian (shelter) use of caves during the 1940s for several reasons. The Society was small and young, and its future was far from assured. The NSS used the government's interest in caves to promote itself and demonstrate its claims of expertise. The leaders of the Society had close ties with the

national Government. These ties were forged during the war, and remained strong afterward. Finally, the Society had not yet developed a concern for the conservation of caves.

By the 1950s, the Society began to develop a new conservation ethic, which was foreshadowed by the hints of opposition to military and civil defense use of caves. In 1951 the NSS created a Committee on Conservation, with former President and cave shelter supporter William Stephenson as Chairman. Stephenson would begin to place more emphasis on protecting the underground environment from despoliation in the early 1950s. In 1954, the Society seriously debated whether caves should be considered natural resources, an indication that members were changing how they viewed caves. It was then a short step from the consideration of caves as resources to a program for conservation of those resources.[24]

While the NSS slowly developed a consensus for cave conservation, and a policy to promote that emerging view, wily entrepreneurs and boosters used the idea of fallout shelter caves to publicize their own commercial interests in caves. For example, after Congressman Rankin expounded on the virtues of Mammoth Cave, a New Mexico newspaper suggested that he bone up on his cave lore, "for Mammoth Cave would only make a good reception room for visitors to Carlsbad Caverns".[25]

Lester Dill, owner of Meramec Caverns in Missouri, was the most successful of these entrepreneurs. In 1950 he applied to the Reconstruction Finance Corporation for a million dollar loan to equip his commercial cave as an atomic shelter. He wanted to create "a five level hole in the ground as a modern Noah's Ark . . . which would come in mighty handy if somebody started flinging hydrogen bombs around."[26] Although he did not get the loan, he garnered wide publicity, both with his loan request and his suggestion that prominent organizations nominate ten Americans who should be given cave shelter priority because of their potential contributions to a new civilization.[27]

A different, yet equally self-serving, utilization of a cave as a fallout shelter can be seen in the activities of the Washington Group of the New York-based Explorers Club. This group of notable men had a history of exploration in Endless Caverns of New Market, Virginia, having conducted three expeditions to the cave between 1925 and 1940. The Club's Washington Group set up a Survey Committee to make plans for using Endless Caverns as a fallout shelter. This Committee inspected the commercial sections of the cave with the goal of reaching a private agreement with the cave's owner to shelter up to 1000 persons. This was to be a private venture. As approved by Virginia Civil Defense authorities, the 1000 persons included in the proposal would consist of the Washington Group and their families, not the general public. The Explorers Club claimed this was to be a model for others, but it was basically a plan to save those who had means and connections. Presumably, the rest of the Washington D.C. population would have to fend for themselves.[28]

From 1953 until 1960, the idea of using caves as fallout shelters was dormant, and in fact appeared to be dead. When a British newspaper examined the possibility in 1955, it noted that Americans had given up on the idea, based on several considerations. These included the likelihood of contamination from surface drainage, the threat of flash flooding, and the existence of more suitable, artificial sites (mines) closer to large cities. At the Second International Congress of Speleology in Salerno, Italy, held in 1958, cave experts from the United States and Europe considered the use of natural caves as fallout shelters and voted unanimously that they were unsuitable for that purpose.[29] But the idea resurfaced around 1961, and was then implemented in the first half of the decade.

The political impetus for enacting a major Civil Defense Fallout Shelter Program came from the new President, John F. Kennedy, in 1961. Eisenhower had rejected such a program in 1958, favoring instead a modest shelter program which focused on home shelters.[30] During the late 1950s, private engineering groups supported the use of caves as fallout shelters, but the Eisenhower Administration did not. For example, Jack Hurley spoke favorably of the idea in a talk given to the D.C. Grotto of the National Speleological Society on June 7, 1960. But Hurley had a vested interest; he represented a company which was currently developing the Annandale Mine in Pennsylvania as a storage facility, and he hoped to secure future contracts by getting cavers to push for the development of caves as shelters. Other engineering firms also seized the idea, hoping to gain lucrative government contracts.[31]

Kennedy was more predisposed than Eisenhower to favor sizable Civil Defense projects, having supported such efforts in Congress since 1949. Once sworn in, he put his own man, Frank Ellis, at the head of the Office of Civil and Defense Mobilization. He also made an important speech on July 25, 1961, in response to the Berlin Crisis, in which he threw his support behind a vigorous shelter program. In essence, he committed himself to fallout shelters, though he had not yet done the groundwork to implement such programs. He said, in part, that "[i]n the event of an attack, the lives of those families which are not hit . . . can still be saved, if they can be warned to take shelter and if that shelter is available . . . . In the coming months [I will] let every citizen know what steps he can take without delay to protect his family in case of attack."[32] While the idea of using caves as shelters surfaced during almost every crisis of the Cold War, Kennedy's strong support for shelters triggered the transformation of the cave shelter idea into reality. This top-level support distinguished the 1960s program from the studies undertaken previously. Kennedy's lack of preparatory work before his speech was reflected in the poorly designed and hastily implemented cave fallout shelter program.

Even before Kennedy's speech, officials began to take steps to use caves as fallout shelters, such as the ones taken at Sauta Cave in Alabama. The aftermath of the speech saw a flurry of activity by local, state, and national agencies. The transfer of national authority for Civil Defense to the Department of Defense came in July; in September, Kennedy named Stewart Pittman as Assistant Secretary of Defense for Civil Defense. DOD was unprepared for the requests for guidance and the demands for action; the situation was chaotic. This chaos gave opponents of Civil Defense time to mobilize. Yet by the end of the year, Congress had passed a special appropriation of 200 million dollars for a shelter survey. A modest part of the national survey was a survey of caves.[33]

The rush to caves as fallout shelters began before the national survey, scheduled for 1962, started. For example, in September of 1961, the city of Kingston, New York, began working on a plan to utilize as fallout shelters two spacious caves under the downtown area, which were currently leased by a company which grew mushrooms in them. The Common (city) Council called for bids on equipping and provisioning the caves, and started a study on the cost of connecting the two caves with a tunnel.[34] In Tennessee, when the State Division of Geology released Thomas Barr's book, *The Caves of Tennessee,* in October 1961, the State Civil Defense Director publicly estimated that over 800,000 state residents could find shelter in caves and mines. He also indicated that a study was already underway to locate and mark these natural shelters.[35]

In early 1962, the Fallout Shelter Program commenced in earnest. It consisted of two parts. First, the Army Corps of Engineers contracted with private engineering firms to locate, survey, mark, and rate the capacity of adequate shelters throughout the country.

Some of these firms surveyed caves and mines as well as buildings. The contractors engaged in the survey during the spring and summer of 1962 and finished by the end of the year.

The second stage called for local and state Civil Defense authorities to provision the shelters and formulate and distribute Community Fallout Shelter Plans to the local citizenry. This was done beginning in 1963 and continuing through 1964. Designated caves were equipped with tinned crackers, 17.5 gallon water cans, sanitation kits, medical supplies, and radiation monitoring devices, in lots of fifty. Enough provisions were included to cover a projected two week stay in the caves.

The Fallout Shelter Program affected caves across the U.S., from Hawaii to Georgia, from Minnesota to Texas. Caves were examined and designated in every section of the country which had them.[36] The Army Corps of Engineers designated about 500 underground sites as shelters, of which 450 were natural caves. Of these, 115 were commercial or government owned caves. This represented 4.5% of the 10,000 known caves in the United States at the time. But because of the size requirements of the Corps, a minimum of 50 spaces of 10 square feet each in every site, many of the major caves in the nation were to be used.[37]

The work of the engineering firms in surveying natural caves as potential fallout shelters varied considerably. Those which sought the advice and assistance of cavers performed adequately, though cavers often interpreted their data differently and reached different conclusions. However, some firms performed poorly. As a result, many of the designated caves had serious flaws. Some totally inappropriate sites were designated, rated, and publicized as fallout shelters.

An example of a thorough survey and evaluation can be found in the work of the Brown Engineering Company of Huntsville, Alabama. This company worked closely with local members of the NSS. Their survey examined 252 potential sites. Field workers examined an additional 23 caves. The company found 94 of these caves to have the potential for meeting the criteria for shelter; 60 would be usable with little modification, while 34 "would need improvement prior to use."[38] These could theoretically provide 117,742 spaces, protecting 25% of the population of the nine county survey area. Although caves were not a major component of the shelter program in every region, locally they were very important.

Brown Engineering Company examined structural stability, ventilation (all the caves were deemed to require an artificial ventilation system), water flow (both surface drainage and infiltration), habitability, and access. The company delineated major problems in these areas, but suggested technical responses to overcome them. It called for a test cave shelter program before the initiation of a large scale project. This report, if taken whole, would have insured the company much work for years. As happened in every case, expenses blocked improvements, but the caves nonetheless became official shelter sites, were posted, and stocked with provisions.[39]

Speleologists who helped the firm in its survey agreed that the company had successfully outlined the major problems involved in using caves as fallout shelters, but disagreed with the conclusions of the company's report. William Varnedoe, in an article widely disseminated by the NSS, immediately eliminated eight categories of caves from consideration. These included caves which had insufficient area or floor space, pit entrances, blowing air, captured surface streams, outflowing streams, a propensity to

flood, difficult access to shelter rooms, and remote locations. His analysis came up with quite different results.

Focusing on Madison County, Alabama, where Brown Engineering Company had found eight suitable caves, Varnedoe found that, "[i]n fact, there is only one [suitable cave], in the author's opinion."[40] His general conclusion was that caves "can not be a prime shelter source and only in isolated cases can they be used as auxiliary shelters after some work."[41] Alabama Civil Defense authorities preferred the assessment of Brown Engineering Company over Varnedoe's, and proceeded to stock designated caves. In neighboring Morgan County, 12 of the 22 large fallout shelters were caves, including Hughes Cave, Talucah Caverns, Wolf Cave, and Cave Spring Cave.[42]

National Speleological Society members made their own evaluations of caves, using the specifications the Corps had given contractors. These studies found that many of the firms had done an appalling job. Many of the sites which the Corps of Engineers had designated were wildly inappropriate. In Washington, for example, William R. Halliday examined eleven lava tube caves in two counties which had been chosen as fallout shelter sites by a Vancouver architectural firm. After looking at a myriad of characteristics, including stability, overburden, meteorology, accessibility, size, habitability, and the presence of water, Halliday concluded that the caves, while not totally unsuitable, were not good candidates for fallout shelters. He stated that "the overall aspects of their use for this purpose are quite discouraging."[43] Although he was initially responding to a newspaper article promoting caves as shelters, he found that his study raised questions "concerning the competence of an architectural firm for speleological determinations."[44] His evaluation of Gardener Cave in Washington succinctly summed up the gross errors made in designating caves as fallout shelters. He noted that "Gardener Cave would make a good refrigerator but a poor shelter. It should be excluded from further consideration."[45] Halliday did note that there was one cave in Washington which might serve adequately as a fallout shelter, Indian Rock Cave.[46] Halliday's work in evaluating the suitability of caves in Utah, and of Oregon Cave in southwest Oregon (a National Park Service show cave) pointed out major problems in using caves as fallout shelters, including those already deemed suitable in the Fallout Shelter Program.[47] Halliday's thorough studies made a major impact: they helped kill the idea of using caves in Washington as shelters.[48]

Other speleologists besides Varnedoe and Halliday found that many of the caves designated as fallout shelters were inappropriate. These speleologists used the same type of technical criteria for their evaluations, which was the NSS strategy for deflecting the Shelter Program away from caves.[49] For example, in Tennessee, Larry E. Matthews and two associates examined four caves near Nashville marked as shelters and found that one of them was subject to flash floods (Dr. May's Cave), one was too small (Cooksey Cave), one was a stream cave (Baker Cave) and the last, though perhaps adequate, was overrated in terms of capacity (Burton Cave).[50]

Similarly, cavers examined three caves in Dade County, Georgia, posted as approved shelters and found that all were at best questionable. Johnson's Crook Cave, a damp cave with a pit entrance was rated at 700 persons, Howard's Waterfall Cave was being used as a trash dump, and Byer's Cave was rated to a capacity of 4,729 persons. A Georgia caver called the latter's capacity rating insane, and sarcastically noted that "[t]his cave is well suited for a shelter as the ceiling is falling and therefore more room is becoming available everyday."[51]

In the 1960s the NSS took more aggressive action than in the 1940s or 1950s to protect major caves from the ill-considered cave fallout shelter idea. Part of this can be attributed

to institutional maturity and the leadership of the Society. The President of the organization, Russell Gurnee, along with Victor A. Schmidt, the Chairman of the Committee on Conservation, took the initiative in formulating a policy and strategy for the NSS on the issue. However, many older leaders of the Society, like Stephenson and Davies, were still active, so explaining the changed position of the Society by looking at leadership alone is inadequate.

By the 1960s the NSS was taking strong stands on national conservation issues, such as supporting the passage of the Wilderness Act, and opposing the flooding of Glen Canyon and the Meramec River Valley. Unlike the 1940s, the members and leaders of the NSS were now conservationists. The Society's primary goal was to protect cave resources from a potentially threatening program, not to promote the Society. The NSS decided not to accept the possible sacrifice of its member's favorite environment, caves, for military and political reasons.

The Society no longer completely trusted the United States Government, particularly in areas of the Society's expertise. Hence the follow-up surveys to the Corps of Engineers' work. Ironically, during the 1940s the NSS used its close relationship with the Government to assert its claim to specialized knowledge, and in the 1960s, the NSS used its specialized knowledge to oppose a government program concerning caves, which the NSS had supported in earlier years.

The key to understanding the changes in the NSS is its adoption of a conservation ethic, which can be clearly seen in the organization's policy-making body, the Board of Governors. The Society's leaders employed a strategy of co-operation with DOD and state and local Civil Defense officials when possible, yet used technical reasons to demonstrate the folly of using caves as fallout shelters. The object was to direct Civil Defense away from caves, or to at least protect the most important caves. Even William J. Stephenson, who suggested the use of caves as bomb shelters in 1940, and who supported the shelter idea in its 1940s incarnation, supported the policy of protecting caves from the 1960s Shelter Program.[52] The caving community had embraced a conservation ethic, and appointed itself protector of the cave environment.

In 1961, NSS President Russell Gurnee wrote an article for the *NSS News* which outlined the Society's opposition to the use of caves as fallout shelters, but he withheld its publication until he had achieved consensus within the NSS Board of Governors on the policy. After emphasizing the need for a formal policy position on the subject, Gurnee and Victor Schmidt obtained unanimous approval from the Board. After Gurnee's article, "Caves and Fallout," was published in March of 1962 it became the basis for the NSS's public position on fallout shelter caves, along with William Varnedoe's technical article. Gurnee pointed to practical considerations such as location, ventilation, stability, and the presence of water which could become contaminated, as factors which made caves unsuitable. This document received wide circulation, as the NSS released it to the public through the Associated Press in February 1962, and subsequently sent it to over 200 engineering firms, members of Congress, and regional Army Corps of Engineers' offices. Accompanying the article in the latter three mailings was a cover letter, in which Russell Gurnee asserted that "the only reason for considering natural caves as shelters would be for the purpose of economy and immediate occupancy. These advantages are misleading, however, for the tremendous expenditures necessary to convert the unreliable conditions within natural caves would be prohibitive."[53] Gurnee, Schmidt, and Varnedoe were appointed to the NSS Fallout Shelter Committee, with Gurnee serving as Chairman. Unfortunately, the records of this Committee are missing.

Although the NSS Board of Governors unanimously supported the organization's policy of co-operation while working to stop the designation of caves as shelters on technical grounds, or to at least protect the most vulnerable and important caves, a few of the Society's more than 1600 members disapproved of the policy of opposing the use of caves as shelters. These members thought the organization should support the Fallout Shelter Program for caves wholeheartedly. They feared that the program would simply proceed without the NSS, and that as a consequence the group would lose its claim of exclusive expertise.[54] Even the leadership worried about this possibility, which helps account for the decision to co-operate and communicate with the governmental agencies as much as possible, and to work against the Fallout Shelter Program on technical rather than conservation grounds.

However, many other NSS members thought that the policy of working within the Civil Defense structure to alter the Program gave up too much. These cavers wanted to more aggressively oppose the Shelter Program on conservation or preservation grounds. These militant proto-environmentalists were a minority in the early 1960s. Despite rumors that these cavers might take direct action, perhaps by destroying Civil Defense provisions placed in the designated caves during the second phase of the Program, calmer heads prevailed and the threats remained verbal.[55] Although the pressure on the Society from these members was real, the Chairman of the Committee on Conservation, Victor Schmidt, had a more accurate read of the situation. He said, with foresight, that "if this Congress doesn't significantly increase appropriations to the shelter program, the only result will be a boon to wildlife once cave rats gnaw their way into the supplies."[56] This was in fact the fate of many of the Civil Defense supplies in caves, while vandals destroyed others. A few caves, mostly show caves with controlled access still contained Civil Defense supplies in the mid-1990s.

The most notable success in using preservation to modify the plans of Civil Defense authorities regarding caves came out of Richard Finch's efforts to stop Van Buren County, Tennessee, officials from using Big Bone Cave as a county-wide shelter. Finch succeeded by stressing historic rather than natural preservation. His argument that Confederate Civil War saltpeter mining artifacts would be threatened was persuasive. Finch successfully highlighted the competing demands upon the underground environment. Big Bone Cave was removed from the list of designated shelter caves, and he planted the idea of turning the site into an historic park.[57]

The efforts of the NSS certainly made a difference during the controversy over using caves as fallout shelters. In areas where the NSS had a large and active membership, the plans for using caves were sometimes cancelled altogether, as in Washington, or modified as to specific sites, as at Big Bone Cave. The most egregious uses of the cave environment occurred where there was no NSS presence at all. Hawaii County, Hawaii, is the prime example.

With no cavers present, Hawaiian Civil Defense officials concocted and implemented a Community Shelter Plan in which 89% of the sites were lava tubes and man-made irrigation tunnels, despite the fact that these were terrible choices. The 28 designated lava tube caves were incredibly inappropriate for their intended usage, and no attention was paid to the fact that some were burial caves from the pre-American period of Hawaiian history. Unlike Richard Finch in Tennessee, in Hawaii no one spoke for competing demands for the cave environment.[58]

The NSS did not stop the use of caves as fallout shelters, but it did divert the path of the Program, slow its momentum, and modify it in some important ways. Cavers provided

important information to opponents of the poorly designed and ill-conceived program, including the people who ultimately did kill the project, members of the U.S. Congress. The NSS worked hard to change public attitudes, which for years had considered caves as an acceptable atomic refuge. The beginning of the end came in 1964, when Congress rejected President Johnson's request for 460 million dollars for new fallout shelter spaces. The program dwindled rapidly, and by 1965 Johnson had more pressing concerns, especially the growing war in Vietnam.[59]

Never again would the United States seriously consider using the natural underground environment as a significant component of military or civil defense policy. Even during the revival of civil defense under President Reagan in the early 1980s, caves were pointedly not part of the program.

Cave enthusiasts had been willing to sacrifice their caves during the patriotic days of World War II, and had shown only slight misgivings about doing so in the early years of the Cold War. By the 1960s things had changed. Not only had the plans for using the caves evolved from protecting industry and artifacts to the protection of people from short term radioactive fallout, but the cave enthusiasts had also changed. For cavers, exploitation of the cave environment had been replaced by a new conservation ethic, which focused upon preserving underground resources. The Huntsville, Alabama cavers who awkwardly encountered soldiers and engineers at Sauta Cave in March of 1961 were more than just interested hobbyists. One of the leaders of the cave trip, William Varnedoe, also became a leader in opposing the use of caves as fallout shelters. He and the other cavers represented a new mode of interacting with the underground environment, which clashed with the older pattern of government exploitation of caves in times of crisis. For both the caves and the cavers the age of conservation had begun.

ACKNOWLEDGMENTS

Many people helped me with this study. I would like to thank Bill Torode, Larry E. Matthews, and Marion O. Smith for bringing a number of important sources to my attention. William R. Halliday also brought sources to my notice, and he answered numerous questions regarding his own role in the cave fallout shelter story. Bill Torode and the staff at the NSS Office in Huntsville, Alabama, made my research trip there both productive and enjoyable. Dr. Joseph A. Pratt and Scout Blum critically read early drafts of this paper and made valuable suggestions. Susan Holler encouraged me to continue work on this paper and submit it for publication. Dr. Andrew Gulliford and Dr. Martin V. Melosi have encouraged me to study what I am interested in, the environmental history of American caves. Finally, I especially thank my wife, Marty Forbes, for her help and understanding. Of course, any errors of fact or interpretation are solely my responsibility.

NOTES

1. Bill Varnedoe and Bill Torode, "Sauta Cave," *Huntsville Grotto Newsletter* vol. 2, no. 4, p. 32.

2. For general information on the Fallout Shelter Program and its place within the history of Civil Defense, see Thomas J. Kerr, *Civil Defense in the U.S.: Bandaid for a Holocaust?* (Boulder, CO, Westview Press, 1983), Neal FitzSimons, "Brief History of Civil Defense," in *Who Speaks for Civil Defense?*, ed. Eugene P. Wigner (Charles Scribner's Sons, New York, 1968) pp. 28-46, Guy Oakes, *The Imaginary War: Civil Defense and American Cold War Culture* (Oxford University Press, New York, 1994). For the history of the NSS and the growth of cave conservation, see Paul H. Damon, ed. *Caving in America: The Story of the National Speleological Society, 1941-1991* (National Speleological Society, Huntsville, AL, 1991).

3. *Bulletin of the National Speleological Society* 2 (May 1941), pp. 12-16.

4. The full story of the role of caves in World War II has not been told, nor has the relationship between the U.S. Government and the National Speleological Society. For outlines of both, see *ibid*, 12-16; Minutes of the First Annual Meeting of the NSS, January 13, 1942, p. 2; Minutes of the NSS Board of Governors Meeting, December 18, 1942, p. 2; Minutes of the NSS Board of Governors Meeting, April 16, 1943, p. 2; *NSS Newsletter*, March 10, 1943, p. 2; *NSS Newsletter*, April 1945, p. 1; Minutes of the NSS Board of Governors Meeting, April 17, 1945, p. 3; *NSS Newsletter*, July 1945, p. 1; Damon, p. 53. William Stephenson outlined the projects involving caves which the U.S. Government and NSS undertook during the war in a letter to the NSS membership dated June 23, 1947. Also see Clay Perry, "The Life and Times of a Spelunker," *New York Times*, June 26, 1946, p. 26.

5. From a nine page fundraising brochure, inserted between the February and March 1947 *NSS Newsletters* in the bound copies at the NSS library in Huntsville, Alabama.

6. For German and Japanese use of caves during the war, see Vernon A. Langille, "Caves for Defense," *Leatherneck Magazine*, April 1948, pp. 2-10; Edward Nellor, "Army Studies Caves for Use in Future Wars," *New York Sun*, April 30, 1946; John L. Kent, "Will the Atom Drive Us Underground?" *Popular Mechanics*, October 1946, pp. 140-151, 240, 244-248.

7. Minutes of the NSS Board of Governors Meeting, November 17, 1945, p. 1.

8. "Going Down," *Time*, May 6, 1946, p. 24.

9. *NSS Newsletter*, July 1946, p. 1.

10. For examples of the scores of articles on the Underground Sites Committee and the use of caves, see "U.S. to Survey Giant Caves for Atomic War Defenses," *Washington Times-Herald*, April 26, 1946; "Study Dispersal of War Factories," *New York Times*, March 26, 1946; Nellor; Langille, 2-10; Kent, 140-151, 240, 244-248; "Survey of Caves for Havens in an Atomic War Is Ordered," *New York Times*, April 29, 1946 (also appears under a different title in *Washington Post*, April 29, 1946); Dorothy Robertson, "Atomic Age Sends Cavemen in Quest of Bomb Shelters," *Richmond Times-Dispatch*, August 18, 1946, p. D-5; "Spelunkers Rush to Cave," *Newark Evening News*, July 19, 1946.

11. "Speleology offered as a Defense Against Horrors of A-Bombs," *Richmond Times Dispatch*, May 2, 1946.

12. Perry, 26.

13. NSS Newsletter, July 1946, p. 1; *NSS Newsletter*, February 1947, p. 1. Also see *NSS Newsletter*, December 1946, p. 1; Minutes of the NSS Board of Governors Meeting, May 4, 1946, p. 1; Daniel Lang, "A Reporter at Large, Mission to Trout," *New Yorker*, May 17, 1947, pp. 76, 78, 80-91.

14. "U.S. Making Cave Survey Just in Case," [Jefferson City, Mo.] *Sunday Tribune*, July 7, 1946, p. 4.

15. For a sampling of editorial opinion, see "Caves Are No Solution," *New York Times*, May 2, 1946, p. 20; "Back to Caves," *Ashtabula* [Ohio] *Star-Beacon*, June 1, 1946;

[Jefferson City, Mo.] *Daily Post Tribune,* September 27, 1946. Herblock appeared in the *Washington Post,* April 30, 1946. Also see Arthur Eilenberg, "Lack of Hope Disheartening," *New York Times,* May 2, 1946, p. 20. For comments in a feature article, see Dorothy Doan, "Cave Hunters Are Lining Up Shelter for Atom-Bomb Age," *Buffalo Evening News,* July 20, 1946. For opposition to the idea of using caves as shelters from a technical perspective, see Bahngrell W. Brown, "The Military Future of Mining," *Mining and Metallurgy,* November 1946, p. 551.

16. "Caves No Good as Shelters in Atomic War," n.p., n.d., in file at the NSS Library. Also see Daniel Lang, "Mission to Trout," *The New Yorker,* May 17, 1947, pp. 76, 78, 80-91.

17. J.S. Petrie, "The People's Forum," *Ashtabula* [Ohio] *Star-Beacon,* June 10, 1946.

18. "Bombproof Caves Scarce," A.P. Newsfeature, mailed from New York on December 31, 1946. In file at NSS Library.

19. "Drops Plan to Build Underground Plants," n.p., n.d., in the file at NSS Library.

20. See "50,000 Caves in U.S. for Atom Shelter," *New York Times,* August 10, 1947; Bill Henthorne, "State Caves May Prove Vital in War," *Tulsa Sun World,* January 11, 1948; Langille, 2-10; Frank Taylor, "Virginia's Natural Caves Eyed in National Defense Planning," *The* [Danville] *Register,* November 20, 1949 (the same article appeared under different titles in the *Washington Post,* November 20, 1949, p. 6 and the *Martinsburg* [West Virginia] *Journal,* November 22, 1949); Joe Collier, "If Atom Bombs Drop, Spelunkers Know All the Best Spots to Hide," *Cleveland Press,* October 12, 1949; Paul F. Ellis, "4,000 Caves in U.S. - Indiana Has a Big Share," [Hammond, In.] *Times,* February 1950; "400 W. Va. Caves Ready if A-Bomb Falls," *Charleston Daily Mail,* March 30, 1950; Frank E. Henckel, "New Interest in Caverns Created by Atomic Bombs," *Jacksonville, Fla. Times-Union,* May 21, 1951; "War Value of Caves to be Discussed Here," *The* [Hagerstown, Md.] *Morning Herald,* April 17, 1952; James Tuck, "America Goes Underground," *Saga Magazine,* February 1952, pp. 11-15, 72-73.

21. Henckel.

22. "Bill Asks Study on Storing Equipment Underground," [Washington D.C.] *Evening Star,* October 5, 1949.

23. "War Value of Caves to be Discussed Here."

24. Damon.

25. Henckel.

26. "Man Asks U.S. for Million to Fix 'Noah's Ark' Cave," *Rocky Mountain News,* February 22, 1950.

27. ibid; "Noah's Ark - 1950," *Business Week,* March 11, 1950; Henckel; Peter Edson, "The Ten to Be Saved," *Washington Daily News,* March 10, 1950; William R. Halliday, M.D., *Depths of the Earth: Caves and Cavers of the United States,* 2nd ed. (Harper and Row, New York, 1976) pp. 78-80.

28. Bill Garrard, "Endless Planned as Refuge from H-Bomb," n.p., n.d., in the file at the NSS Library.

29. "In an A-war, Could We Live in Caves?" *Bristol* [England] *Evening Post,* September 7, 1955; Russell Gurnee, "Caves and Fallout Shelters," *NSS News,* March 1962, pp. 24-25.

30. FitzSimons, p. 40.

31 Jack Hurley, "Remarks on the Potential of Underground Space for Defense Against Attack," *D.C. Speleograph,* June 1960. Reprinted in *Journal of Spelean History,* vol. 27, no. 4 (October-December 1993), pp. 71-72. Also see Thomas E. Bailey, "The Survey and Improvement of Natural Caves for Use as Fallout Shelters in North Alabama," *Bulletin of the National Speleological Society,* vol. 25 no. 1 (January 1963), pp. 15-22.

32. FitzSimons, pp. 41-42.

33. Varnedoe and Torode, p. 32; FitzSimons, pp. 42-43.

34. "Cave Shelter Urged," *New York Times,* September 23, 1961, p. 8.

35. "Tennessee Studies Caves as Shelters," *New York Times,* October 15, 1961, in file at NSS Library.

36. For example, see William R. Halliday, "Western Caves Under Consideration as Fallout Shelters," *Western Speleological Survey Serial #29,* August 1963, p. 1. This list includes caves from every western state except Alaska, Hawaii, and Utah. The omission of Utah was an oversight, as the author noted in "Preliminary Evaluations of Utah Caves Tentatively Considered for Use as Fallout Shelters," *Western Speleological Survey Serial #31,* September 1963, p. 1.

37. "Report of the Executive Vice-President of the NSS," December 28, 1963, p. 1, found in Agenda and Minutes of the NSS Executive Committee Meetings, NSS Library. For a list of the criteria the Corps of Engineers established for cave shelters, see Bailey, pp. 15-22. The estimate of the number of known caves in the United States in 1962 comes from Russell Gurnee, pp. 24-25. For supplies put into shelters see Andrew S. Bullis and Lawrence A. Williams, *Organizing Municipal Governments for Civil Defense* (Washington D.C.: American Municipal Association, October 1963) pp. 25, 26.

38. Bailey, p. 21.

39. ibid, pp. 15-22.

40. W.W. Varnedoe, "Some Considerations on the Use of Natural Caves as Fall-Out Shelters in North Alabama," *NSS News,* August 1962, pp. 104-107.

41. ibid, p. 107.

42. Christopher Bell, "Morgan County Civil Defense Seeks More Fallout Shelters," *Huntsville Times,* n.d., in file at the NSS Library.

43. William R. Halliday, "Suitability of Lava Tube Caves of Klickitat and Skamania Counties, Washington as Shelters Against Nuclear Blast," *Western Speleological Survey Serial #24,* April 1962, pp. 1-4.

44. ibid, p. 1; Also see "Skamania, Klickitat Caves May Shelter Modern Man," *Seattle Times*, February 17, 1962, p. 2.

45. William R. Halliday, "A Consideration of the Use of Washington Caves as Fallout Shelters," *Western Speleological Survey Serial #34*, September 1964, p. 2.

46. ibid, p. 2.

47. Halliday, "Preliminary Evaluation of Utah Caves," 1; William R. Halliday, "Considerations of the Use of Oregon Cave as a Fallout Shelter," *Western Speleological Survey Serial #27*, April 1963, pp. 1-4.

48. Victor A. Schmidt, Memo to Members of the [NSS] Committee on Conservation, April 25, 1963, pp. 1-6; Interview with William R. Halliday, March 13, 1995.

49. For NSS strategy, see Minutes of the Board of Governors Meeting, February 23, 1963, pp. 17-19.

50. Larry E. Matthews and George Benedict, "Fallout Shelter Survey, Part 1," *Speleonews* vol. 8 no. 6 (December 1964), pp. 65-67; Larry E. Matthews, "Fallout Shelter Survey, Part 2," *Speleonews* vol. 9 no. 1 (February 1965), pp. 16-18. Also see the front cover illustration by Ed Yarbrough on the former publication.

51. Winton McNair, "Posted Fallout Caves Reported," *NSS News*, May 1963.

52. Stephenson, at a meeting of the leadership of the NSS, voted in favor of Gurnee and Schmidt's proposed policy. In fact, the vote was unanimous. Minutes of the NSS Board of Governors Meeting, March 9, 1963, pp. 9, 10. For NSS conservation activities in the period, see Schmidt, pp. 1-5. Also see the ambitious conservation plan "The Fragile Wilderness Beneath the Earth," written in October 1961. This clearly shows the importance the organization gave to environmental questions. NSS Archives, Conservation file.

53. Russell H. Gurnee, cover letter, August 27, 1962. NSS Archives, Conservation file. For a brief but thorough account of the actions taken by the NSS, see Schmidt, pp. 4, 5; Gurnee, "Caves and Fallout,"; Russell Gurnee, "To Review - Cave Fallout Shelters," *NSS News*, July 1963, p. 78. For internal discussion within the NSS leadership, see Minutes of the NSS Board of Governors Meetings, February 10, 1962, May 5, 1962, February 23, 1963, March 9, 1964, and November 14, 1964.

54. See William H. Peters, "Comment of [sic] the Designation of Certain Caves as Fallout Shelters," *D.C. Speleograph*, April 1963, reprinted in *Journal of Spelean History* vol. 27, no. 4 (October - December 1993), pp. 72-74. For the number of NSS members in 1960, see Damon, p. 148.

55. A.D. Brown "Cave Fallout Shelters - Factual," *NSS News*, April 1963.

56. Schmidt, p. 5.

57. Richard Finch, "Bone Cave vs. Atomic Fallout," *Speleonews*, vol. 8, no. 3 (June 1964), pp. 33, 34; Ed Yarbrough, "The Bone Cave Situation, A Resume," *Speleonews*, vol. 9, no. 2 (February 1965), p. 19.

58. Official Community Fallout Shelter Plan for Hawaii County, Hawaii, prepared by the County of Hawaii Civil Defense Agency; Interview with William R. Halliday, March 13, 1995.

59. FitzSimons, pp. 43, 44.

THE EARLY REPORTS OF SHELAH WATERS' DEATH WERE GREATLY EXAGGERATED !!!

by Larry E. Matthews

INTRODUCTION

Shelah Waters was an early explorer in Higgenbotham Cave (now known as Cumberland Caverns), which is located in Warren County, Tennessee. Shelah Waters is best known for writing his name, his initials, and the date 1869 all over the historic sections of the cave. Tom Barr's book, *Caves of Tennessee* (1961), gives the following account of Shelah Waters:

> "Of special interest is the name 'Shelah Waters' (fig. 129), the initials 'S.W.', and the associated date, '1869'. Waters was a tax revenue officer who was ambushed and killed near Spencer in the year following his visit to the cave. His name appears in remote areas, indicating that he was perhaps the first explorer to stray far from the beaten path."

Barr says in a footnote on page 470 that: "The writer is indebted to the late Thomas Barnes, Warren County historian, for much of the information presented here concerning the early history of Cumberland Caverns."

The book *Cumberland Caverns* (1989) devotes an entire chapter to Shelah Waters (Chapter 5, "Shelah Waters," pp. 49-57). Most of the information in this chapter was researched by Marion O. Smith. The chapter ends by repeating Barr's story of how Shelah Waters was ambushed and killed in 1870.

TENNESSEE STATE MUSEUM

During the summer of 1990 I was visited by out-of-town company and while they were in Nashville, I took them to the Tennessee State Museum. While we were in the Civil War History section of the museum, I was surprised to find a display case with items that were labeled as having belonged to Major Shelah Waters. Having seen Waters name in the cave for many years and having read the old documents from the Civil War that Marion O. Smith had located, it was really thrilling to see real items that had belonged to him.

A few days later, after my company had returned to Chicago, I telephoned the museum in an effort to determine if they had any other material that had belonged to Shelah Waters, especially documents and manuscripts. I was told over the telephone that that was all the museum had, but if there had been any manuscripts or documents, they would be housed at

the State Library and Archives. According to the man on the telephone, a descendent of Shelah Waters had donated the articles to the State Museum. I telephoned the State Library and Archives and was told that I would have to make any request for information in writing. Eager to determine if there were any papers, I sent the Library a letter asking for that information.

THE MCGARR-WATERS PAPERS

In the middle of June, 1990, I received a large, manila envelope from the Tennessee State Library and Archives. Eager as a child at Christmas, I quickly opened it up to see what was inside. There were photocopies of several historic documents:

(1) 2 pages dated May 7, 1868 from the United States Treasury Department that name Shelah Waters to a First Class Clerkship in the Second Auditor of the Treasury.

(2) 1 page dated May 23, 1868 from the United States Treasury Department that name Shelah Waters a First Class Clerk in the Office of the Second Auditor of the Treasury Act March 19, 1868.

(3) 2 pages dated April 15, 1869 from the United States Treasury Department accepting Shelah Waters' resignation as a Clerk.

(4) 2 pages dated June 8, 1871 from the United States Treasury Department appointing Shelah Waters Assessor of Internal Revenue in and for the Third Collection District of the State of Tennessee. This letter is addressed to "Shelah Waters, Esq., McMinnville, Tennessee."

(5) 1 page dated May 8, 1872 from the United States Treasury, commending Shelah Waters for his "expedition against illicit distillers" in his district.

(6) 1 page dated June 20, 1872 from the United States Treasury, concerning a penalty against a company in Shelah Waters' district.

(7) 1 page dated August 23, 1872 advising Shelah Waters that a J. L. Wilkerson had been appointed to assist him in making a survey of the distilleries in his district.

(8) A certificate, signed by President U. S. Grant and dated February 26, 1875, appointing Shelah Waters as Postmaster for Lebanon, Tennessee.

(9) A check (?) or bank draft (?) to S. Waters dated September 9, 1886 from Martin Reinberg & Co. for "Cincuenta pesos oro," which translates as fifty (50) gold pesos.

(10) A check (?) or bank draft (?) to S. Waters dated December 9, 1887 from George Chambers for "Three hundred dollars American Gold."

The documents listed above are a part of the McGarr-Waters Papers, which are housed in their manuscript collection. These ten (10) documents are the only ones in the collection which deal with Shelah Waters. This collection of documents was donated to the State Library by descendants of the family.

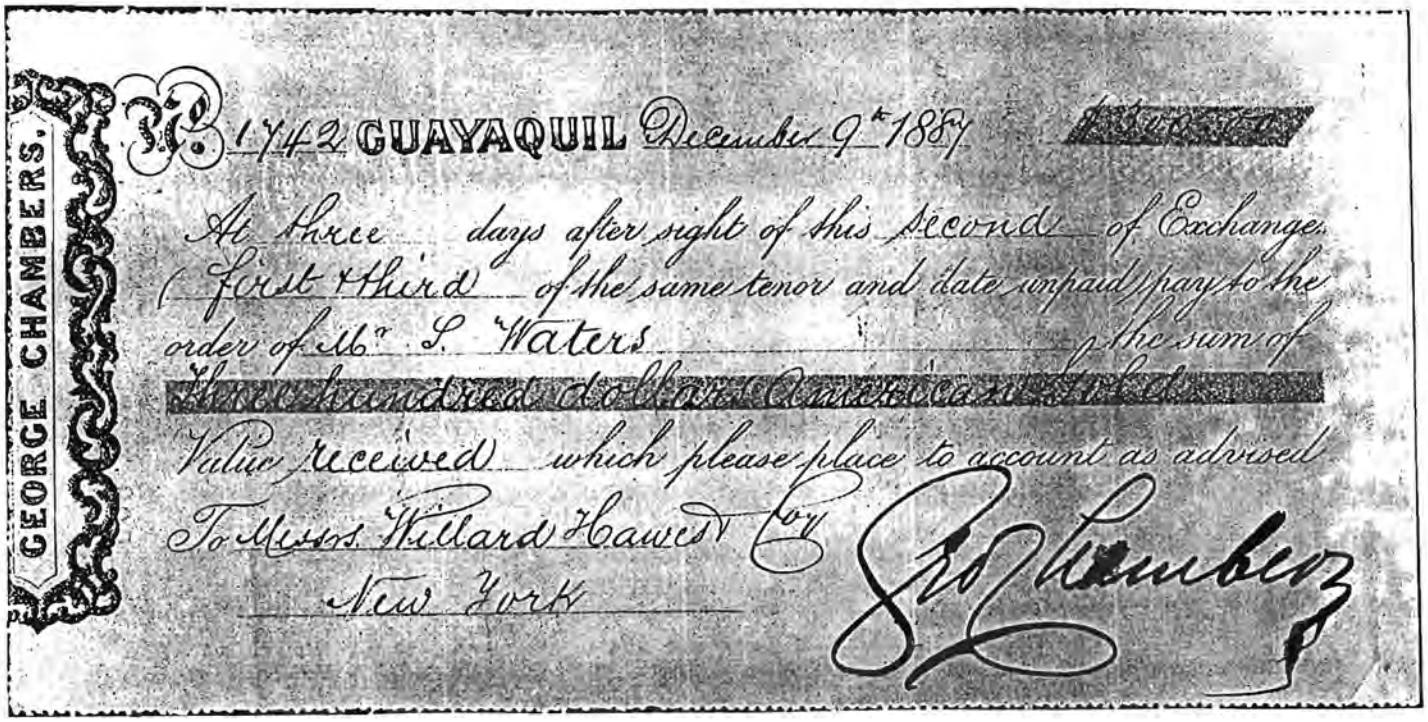
CONCLUSIONS

Since checks (Document 10) are rarely, if ever, made out to dead men, it seems obvious that Shelah Waters was still alive on December 9, 1887. Therefore, the story of his ambush and death in 1870 is clearly untrue. Waters was still in McMinnville as late as August 23, 1872 (Document 7) and was still in Middle Tennessee as late as February 26, 1875 (Document 8). This is a classic example of how folklore or oral history can be unreliable.

BIBLIOGRAPHY

Barr, Thomas C., Jr., *Caves of Tennessee,* Tennessee Division of Geology, Bulletin 64, 1961, 567 pages.

Matthews, Larry E., *Cumberland Caverns,* National Speleological Society, Huntsville, AL 1989, 318 pages.


GEORGE CHAMBERS.

No. 1742 GUAYAQUIL December 9th 1887

At three days after sight of this Second of Exchange. (First + Third of the same tenor and date unpaid) pay to the order of Mr. S. Waters the sum of

three hundred dollars American Gold

Value received which please place to account as advised

To Messrs Willard Hawes & Co

New York

Geo Chambers

ULYSSES S. GRANT,

PRESIDENT OF THE UNITED STATES OF AMERICA,

To all to whom these Presents shall come, Greeting:

Know ye, That reposing special trust and confidence in the Intelligence, Diligence, and Discretion of Nelson Wells I have nominated, and by and with the advice and consent of the Senate, do appoint him Postmaster at Lebanon in the County of Wilson, State of Tennessee, and do authorize and empower him to execute and fulfill the duties of that office according to the laws of the United States and the regulations of the Post Office Department. And to have and to hold the said office with all the rights and emoluments thereunto legally appertaining, unto him, the said Nelson Wells for and during the term of four years from the day of the date hereof, subject to the conditions prescribed by law.

In testimony whereof, I have caused these letters to be made patent, and the seal of the Post Office Department of the United States to be hereunto affixed.

Given under my hand at the City of Washington, the twenty-eighth day of February in the year of our Lord one thousand eight hundred and seventy-five, and of the Independence of the United States of America the one hundredth.

By the President:

U. S. Grant

Marshall Jewell Postmaster General.

W.O.A.

Treasury Department,

Office of Commissioner of Internal Revenue,

Washington, August 23, 1872.

Sir:

You are hereby advised that Mr. J. P. C. Wilkinson has been designated as a competent and skilful person to aid you in making survey of the Distilleries in your District, as required by Section 10 of the Act of July 20, 1868.

Very respectfully,

B. J. Sweet
Acting Commissioner.

To Shelah Waters, Esq.,
Assr. 3d Dist.
McMinnville
Tenn.

E. A. M.

ELGIVA HOWE'S WEDDING

by Chris Howes

The story of Lester Howe's discovery of Howe Caverns and its subsequent operation is reasonably well known and quoted in a number of volumes. The tale of his daughter's marriage in the cave has also entered the realm of folk tale, but it is worth examining the authenticity of the accompanying photograph.

Lester Howe was a cattle farmer, a newcomer to the Schoharie Valley in New York state in 1842. He noticed that his cows had developed a habit of collecting near one particular section of hillside, and when curiosity drove Howe to investigate why this should be, he found a cool draught of air blowing out of a small hole. Exploring it, Lester found a lake and an underground river, slender stalactites and pagoda-like stalagmites. Being an enterprising sort of person, within a short time he was showing visitors around his subterranean land, for a fee, of course. It cost fifty cents for an eight hour tour, clad in rubber boots and a "cave costume" of heavy-duty cloth.

Legend says that his daughter, Elgiva Howe, had always claimed she "wouldn't marry the best man on the earth," so much did she enjoy receiving her many suitors. However, she eventually fell prey to one man in particular, H. S. Dewey, and they became betrothed. The marriage date was set: 27 September 1854.

But how could Elgiva reconcile her assertion not to marry even the best man on the earth? The answer was simple, given the availability of Howe's Cave: The ceremony would be held below the ground. In what is now called The Bridal Chamber, according to the photograph a ladder was erected against the rough stone wall, so that the ceremony took place far above the cave floor. Elgiva must have had considerable trouble climbing up, clad as she was in a flowing white gown.

At least, the photograph suggests that the wedding was conducted in this way. As with so many historical pictures, there is another side to the story. Photography in 1854 was in its infancy. Apart from the fact that pictures taken away from a photographic studio were few in number, artificial light suitable for underground use had yet to be developed. Magnesium did not become commercially available until the early 1860s, and was certainly not used for photography. In the 1850s it was an expensive laboratory curiosity. Bengal light, a mixture of chemicals which burned to give not only a roaring fiery light but also clouds of choking fumes, was used to light up larger chambers, but would have required long exposure times with the insensitive photographic plates of the time.

The same argument applies to limelight, otherwise known as calcium or oxyhydrogen light. The wavelength of light that was emitted lacked the actinic component which photographic emulsion was sensitive to, and exposures using this source would take - literally - hours: even in the 1890s some two hours exposure was needed to expose a plate with limelight. In the case of Bengal light, smoke would have enveloped the scene long before the picture had been taken. Conducted tours were made using candles, or at best lanterns burning lard-oil. Again, to use candles or lanterns would take so long that the people would have moved and blurred the picture - as is the case with every other artificial light at that time.

So, sadly for Howe's Cave and the wedding story, the picture is a fake. There was no viable way for it to have been taken at the time it was claimed as, observably, the figures could not have stood still for so long. However, the picture's tale is not a total falsehood, for weddings have and still do take place in the cave. The photograph was probably taken

much later in the century, perhaps using magnesium ribbon in the 1860s or '70s, or with flashpowder after its invention in the late 1880s, in an attempt to encourage tourism. Photographs have always been powerful tools in the advertising world.

Howe's Cave is now a thriving concern, a major tourist attraction, partly due to Howe's foresight. An ardent experimenter, he had even promoted his cave hotel by air conditioning it with cool cave air, piped into the dining room on hot summer days. Later, gas lights were installed, and part of the cave had a railway to carry tourists, and for a while the caverns rivalled Niagara Falls as an attraction. As to weddings, Howe's Cave management does not charge for the use of their underground "church," and it certainly provides an unusual setting for a special occasion. More than 200 weddings have now taken place in The Bridal Chamber, following in Elgiva's footsteps. Perhaps Lester Howe would have been proud at the tradition he helped begin, over 145 years ago.

A NOTABLE NEWSPAPER ACCOUNT OF DIAMOND CAVERN, ARK. AND ITS SALE

by William R. Halliday

The September 14, 1995 issue of *The Newton County Times* (PO Box 453, Jasper, Ark.) devoted most of its front page and 1-1/3 column on page 10 to the sale of Diamond Cave to a Texas corporation which plans to maintain the cave and its surroundings as a nature reserve. In a separate transaction, 427 acres of adjoining property also were sold. The latter included the home of Berlin and Bonnie Carlton who moved to the cave in 1957 and became an integral part of its history. Much history and lore of the cave is included. Speleohistorians attempting to call the *Times* to obtain a copy of the paper should be aware that it is a weekly.