

Remembering Captain Karst: Dr. John R. Holsinger

by Dave Culver, Wil Orndorff, and Chris Hobson

More often than not, when one of us knocks on the door of a house in western Virginia asking permission to visit a cave, one of the first questions we are asked is, “How is Dr. Holsinger?” For many cave owners, he was the first member of the cave exploration and scientific community they met, and in nearly all cases, the most memorable.

Sadly, we are at the end of an era. Dr. John Holsinger, aka Captain Karst, a legendary caver and cave biologist, died on November 10, 2018. John’s caving career spanned the gamut from sport caver to expedition caver to speleologist to cave conservationist. Those who knew John were often surprised at the breadth of his activities.

John began going into caves in the 1950s when he was a student at Virginia Polytechnic Institute and State University (now Virginia Tech) and caved with the VPI student grotto of the National Speleological Society (NSS). After his graduation from VPI in 1955 and a stint in the Army signal corps in Hawaii, he taught high school biology in Fairfax County, Virginia, and started the Biological Survey of Virginia Caves, an NSS-supported project.

During the late 1950s and early 1960s, John was an active vertical caver. Together with his longtime friend, John Cooper, Holsinger not only made the first biological collections in many vertical caves in the Virginias, he also helped lead the exploration and survey of these same caves. Cooper relates many stories about their joint exploits in his recently published *Cave of the Boa Constrictor*. Perhaps the most memorable is the hair-raising tale of Holsinger’s ordeal in Crookshank Hole in West Virginia, where he was trapped for many hours in rising water until he was manually pulled from the cave by Cooper and others.

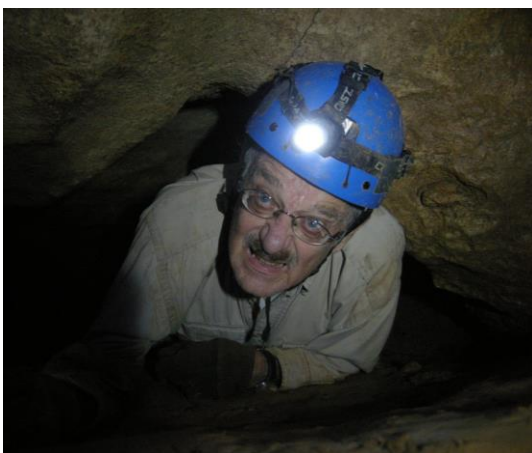
John Holsinger’s interest in cave critters was crystallized by research performed in pursuit of a Masters degree, awarded in 1963 from Madison College (now James Madison University.) Much of his M.S. thesis was published in the NSS Bulletin as a checklist of the obligate cave-dwelling organisms found in Virginia caves. This interest in the overall diversity of cave life continued throughout his scientific career, reflected in papers and articles not only about his beloved amphipods, but also on bats, salamanders, isopods, and mites. He pioneered the idea that overall biological surveys of cave faunas were important, and co-authored annotated lists for Georgia, Pennsylvania, east Tennessee, West Virginia, and two monograph-length updates of the Virginia cave fauna, first in 1988 and again in 2013. And he encouraged others to produce lists as well. Scientific names of numerous species bear witness to John’s dedication: the amphipod *Stygobromus holsingeri*, the cave beetle *Pseudanophthalmus holsingeri*, the groundwater flatworm *Sphalloplana holsingeri*, the isopod *Caecidotea holsingeri*, the cave spider *Nesticus holsingeri*, the millipede *Pseudotremia johnholsingeri*, and three species of cave pseudoscorpion—*Apochthonius holsingeri*, *Hesperochernes holsingeri*, and *Mundochthonius holsingeri*. His name even rose to the genus level with the Unthanks Cave Snail (*Holsingeria unthanksensis*.)

After extensive caving in the Virginias during the late 1950s and early 1960s, and with growing interest in subterranean biodiversity, John returned to graduate school at the University of Kentucky, where he

obtained his Ph.D. in 1967 under the direction of Tom Barr, himself a legendary biospeleologist. John's dissertation was on the taxonomy of a large group of subterranean amphipods, which he eventually classified in the genus *Stygobromus*. That genus now has about 140 described species, only a handful of which were documented when John began dissecting them under his microscope and describing them in painstaking detail. So began a scientific career as a cave amphipod taxonomist that lasted half a century. John described hundreds of species, not only in the genus *Stygobromus*, but in all of the other eight amphipod genera that occur in North American caves.

As the years went on, his interest in subterranean amphipods became global, and he described dozens of new species from throughout the world. More than 100 publications on subterranean amphipods will be a lasting legacy of his work. His enthusiasm for the morphology of cave amphipods was boundless. Anyone who was fortunate enough to hear him give a presentation on amphipods was treated to an enthusiastic and interesting talk, even if John had already described many similar species. In less skilled hands, his talks would have become soporific.

Cavers perhaps know John best for his role in the discovery and description of Virginia caves. When John started caving in the late 1950s, little was known about the caves in extreme southwestern Virginia, especially Lee, Scott, and Wise counties, which Henry Douglas considered of only minor significance in his 1964 book, *Caves of Virginia*. Over the next decade, John proved Douglas wrong by documenting the existence of hundreds of caves in these counties, which today are known to include many world-class caves, including the longest cave in Virginia and the deepest cave east of the Mississippi. One of the informal traditions he established, beginning in 1961 and continuing for nearly 50 years, was the Dirty Old Men (DOM) gathering on Thanksgiving weekend, which in most years was devoted to the exploration of caves in extreme southwestern Virginia. Holsinger took over the Virginia Cave Survey from Douglas, and his efforts culminated in the 1975 publication by the Virginia Division of Mineral Resources of *Descriptions of Virginia Caves*, which contained the first documentation in the caving community of hundreds of caves.

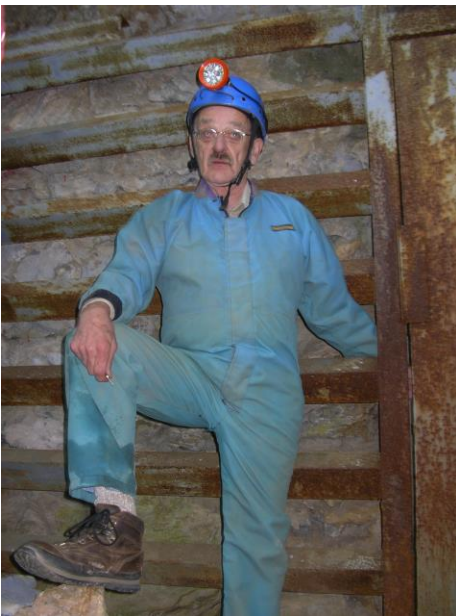


We are not sure if John had one favorite cave, but a good candidate would be Unthanks Cave in Lee County, an 8-mile-long cave with an abundant and diverse fauna. John was instrumental in persuading The Nature Conservancy (TNC) to purchase two small tracts that included the cave entrance and a gas station with corroded petroleum tanks that leaked into the cave. In the early 2000s, Unthanks was given by TNC to the Virginia Department of Conservation and Recreation's Natural Heritage Program, which manages the cave as a State Natural Area Preserve. The Natural Heritage Program and TNC continue working together to protect all of the land overlying or draining to the cave.

John Holsinger's conservation efforts extended far beyond protecting a handful of his favorite caves. Not so much in speleopolitics as in politics for the sake of caves and cavers, John was part of a group of pioneers that included Evelyn Bradshaw, John Wilson, Henry Graves, Roy Powers, and Phil Lucas who

saw a role for the state in the recognition and protection of cave and karst resources. Starting with the Commission on Virginia Caves and culminating with the Virginia Cave Board, John served 30 years as a governor-appointed citizen volunteer working to protect the state's karst. Notable achievements of these boards included the passage of the Virginia Cave Protection Act in 1979; regulation of scientific studies to limit impacts to caves; recognition of the paleontological, archaeological, and associated cultural significance of caves; and direct actions to conserve and restore threatened and degraded cave systems. John's efforts led to the 1982 listing of the Madison Cave Isopod (*Antrolana lira*) as threatened under the Endangered Species Act as part of a successful attempt to prevent discharge of chlorinated water to a sinkhole overlying the species' type locality.

In the 1980s, John led the Cave Board campaign to restore and protect Lee County's Thompson Cedar Cave, which he discovered had been contaminated by leachate flowing from massive sawdust piles adjacent to and overlying the cave. The effect was so severe that almost all life in the cave had been extinguished, resulting in the Endangered Species listing in 1992 of the Lee County Cave Isopod (*Lirceus usdagalun*), then known only from one other cave system. The protection and resources afforded these two species have resulted in increased knowledge and long-term protections not only of these animals, but the caves and groundwater in which they live. All six caves from which *Lirceus usdagalun* is now known lie beneath the Cedars State Natural Area Preserve, including Thompson Cedar Cave that was restored by the long-term efforts of the landowner, state and federal agencies, and the Virginia CaveBoard, all spurred on by John Holsinger.



John was a lifelong teacher. A high school biology and earth science teacher in the early days, he went on to be a professor at East Tennessee State University and Old Dominion University, where he spent most of his professorial career. He mentored a number of graduate students both at the Masters and Ph.D. levels, including Jill Yager, discoverer of the Remipedes, a previously unknown class of Crustacea; Lynn Ferguson, expert on cave-adapted diplurans of North America; Jun Zhang, expert on Crangonyx amphipods; Stefan Konneman, expert on Bogidiellid and Crangonyctid amphipods; Tom Sawicki, expert on Hadzioidea amphipods; and Jerry Lewis, the leading expert on freshwater isopods of North America. John enlightened hundreds of Old Dominion University students over the decades through his unique course on Cave Biology, leading weekend-long field trips to caves in Virginia and West Virginia to see some of the fascinating places and creatures covered in his lectures.

John was also an important mentor and teacher to many who were not formally his students, folks like Dave Hubbard, Terri Brown, Chris Hobson, Dan Feller, and many, many others who strive to carry on John's legacy in biology, exploration, conservation, and education. And amidst all of his research, teaching, and exploration, John still somehow managed to make time for his wife Linda and their extended family, who, together with us, mourn his passing and celebrate his life.

John was an active participant in many NSS activities for over 50 years. He chaired the 1963 NSS Convention at Mountain Lake and produced the first guidebook for a convention. He was active in leadership roles in the Virginia Region for decades. He was one of the founders of the NSS Biology Section, led field trips at multiple NSS conventions, and served on the Board of Governors in the 1970s. John's last trip to an NSS Convention was Huntsville in 2014, where he delivered an NSS luminary talk to a standing room only audience.

In the course of his biological investigations, John amassed huge collection of specimens from all over the world. Per his wishes, and with the help of the Cave Conservancy of the Virginias and the Cave Conservancy Foundation, all of these specimens now reside, well catalogued, in the collections of the Smithsonian National Museum of Natural History.

In honor of John's work toward our understanding of caves, cave biology, conservation, and taxonomy, the Virginia Natural Heritage Program established the John R. Holsinger Cave Conservation Fund. Those wishing to contribute should contact the Virginia Department of Conservation and Recreation Division of Natural Heritage at 804-786-7951. Checks should be made out to the "Natural Areas Preservation Fund", with Holsinger Cave Conservation Fund noted in the memo and sent to 600 East Main Street, 16 th floor, Richmond, Virginia, 23219.



In all his activities, John Holsinger was incredibly generous in sharing both time and credit. He always welcomed new people to caving and cave biology. He could also be irascible, and it is fair to say he did not suffer fools gladly. Setting an example which we all would do well to follow, John took the time to carefully document and publish nearly everything he did, leaving a lasting contribution to both the caving and broader scientific communities. In a real sense, he devoted his life to speleology, which will be diminished by his passing.