

WILLIAM J. STEPHENSON

BULLETIN OF THE NATIONAL SPELEOLOGICAL SOCIETY



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WILLIAM J. STEPHENSON

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LONG EARED BATS

Within the past year the society has collected many species of long-eared bats, yet not a single one of these bats has been found in caves below 2200 ft. in elevation. All of these caves have been located in Pendleton Co., W. Va.

On February 22, 1941, long-eared bats were observed hibernating in Peacock Cave where the temperature was below freezing. Although the exact temperature was not measured, ice deposits in the form of stalactites and stalagmites of ice were present and not melting at the point of hibernation. A few species which were collected appear to be no more dormant than the average bat hibernating at temperatures in the 50's. They were immediately aroused, and attempted to bite the collector. The point of hibernation was in total darkness about 150 ft. in from the entrance of the cave. The cold condition at this point was apparently produced by a strong in-draft of outside air. About 500 ft. further in this same cave the temperature was apparently normal temperature encountered in caves in this area.

These same bats hibernating under similar conditions have also been observed in School House Cave.

Temperature Variations

The assumption that all caves possess an even temperature approximately equal to the average yearly temperature at the location of the cave appears to be true only of caves or portions of caves that have a very low rate of air circulation. Temperatures as low as 35 degrees have been observed 900 ft. in School House Cave at the so-called "Jumping-off Place". Ice has been reported 150 ft. in from the entrance of both Peacock and Trout's Cave. Ice has been observed under the leaves in the entrance room of School House Cave approximately 100 ft. from the actual entrance, sometimes as late as July. In Witherose Cave on March 22 of this year temperature variations of 37 to 51 degrees were encountered. The main factor causing these low temperatures so far inside certain caves appears to be the forced circulation of air, which is apparently controlled by the size and shape of the openings and passageways and may also depend upon openings at different levels to insure the circulation. In School house cave it has been discovered that at least part of the circulation is probably due to passages connecting the dome room and the entrance room (a difference of elevation of over 70 ft.). Cold air apparently flows in the large entrance, into the entrance room, back through the upper passage, over the jumping-off place, and then drops to the Cascade Pit, (the lowest point in the cave) and returns, warmed, along the lower passage into the dome room, and then through small interconnecting passages to the floor of the upper part of the entrance room. Such air then escapes through the entrance to the outside and maintains a constant forced in-draft circulation of air. For more complete accounts of this phenomena see "Mountaineering in West Virginia", by Culverwell, in the Potomac Appalachian Trail Club Bulletin, January, 1941. See bottom of p.4 and top of p.5 and included maps.)

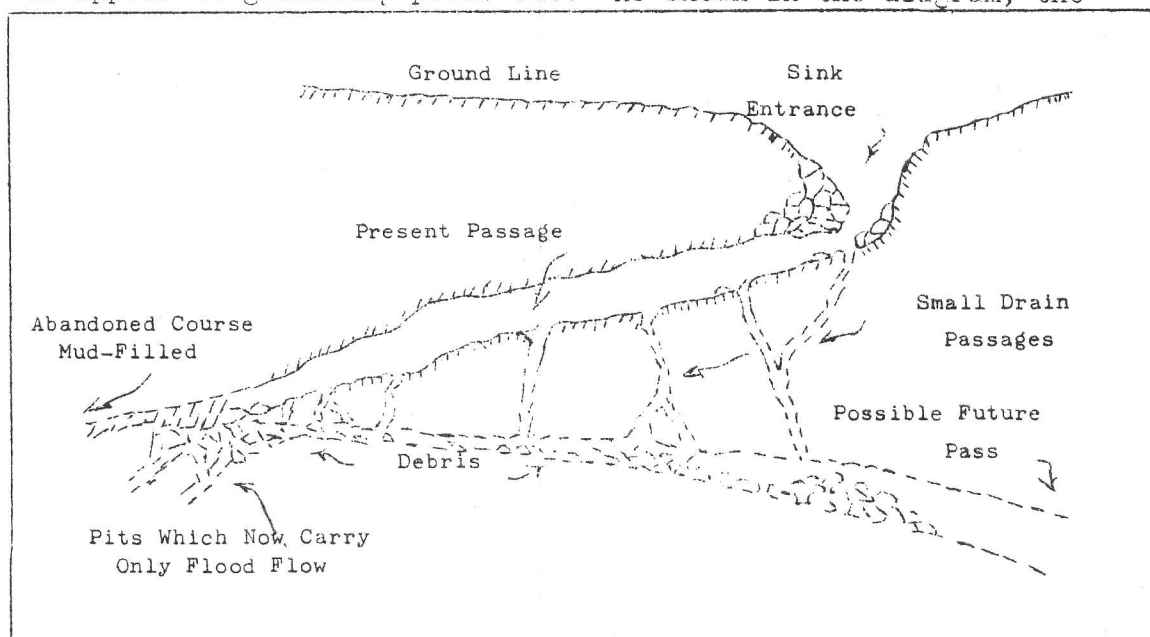
Bat Movements During Hibernation

In Witherose Cave (see Bulletin of the Speleological Society of U.S., June, 1940) it has been observed that the bats apparently use different parts of the cave for hibernation at different times of the year. In Nov., 1938, 1939, and 1940, large clusters of bats, mostly

Myotis Sodalis, have been observed in the eastern parts of the cave, especially in the back parts of the cave. In April, 1939, March, 1940, and March, 1941 large clusters of bats were observed in the western part of the cave, while relatively few were observed in the eastern part of the cave. On the first of May, 1940, the majority of the bats were in the center parts of the cave. The reason for the change in the location of the clusters to other parts of the cave is not understood at present. In April, 1941, the clusters were observed where the temperatures were 40 to 42 degrees. It could hardly be presumed that the bats were awakened from their hibernation and were moving near the entrance of the cave, since the bats collected in April, 1939 were so dormant that those knocked off the wall were easily picked up later.

Passages That Peter Out

John's Cave offers a new explanation why certain caves having passages apparently formed by large streams of water, but which often appear to gradually peter out. As shown in the diagram, the



water apparently flowing down a solution channel has gradually formed new paths down the lower levels. Only at times of flood the older paths through the cave are used. The older or more or less unused portions are not exposed to the same amount of water wear and therefore are smaller. Also these portions gradually become choked with mud and debris. As the flow through the main water course would be gradually lessened with the formation of added passages to the lower level and since each succeeding passage will have a steeper gradient or greater total fall and thus be able to carry a greater volume of water in relation to its cross-sectional area, none of the passages connecting the lower level may in the average case be reasonable expected to reach a sufficient diameter to permit a human to pass. Often the entrance of the down drain passages may be obscured by sand and silt or be so small as to escape notice. This should help to explain in some measure why so many large and apparently main passages appear to just peter out. While the above facts as stated observed in John's Cve. appear to be a perfect example of this phenomenon, Hell Hole and Clyde Cochraine also furnish other similar ex-

amples. A further and more detailed report on this phenomena will be published in the future, it is hoped.

Varying Moisture Conditions

A most interesting moisture condition was observed recently in Mohler's Cave. In April, 1940, the first party from the society to enter Mohler's Cave found the upper levels practically bone dry, but were stopped in the lower passage by a series of large lakes. Later, in August of the same year, the exploring party found the upper level extremely muddy, but the lakes which had stopped the party before were completely dried up. Apparently the moisture conditions in the upper level of this cave must either vary quite closely to the instant surface conditions, while the moisture condition in the lower parts appear to follow the seasonal trends. The mouth of the cave, however, drains the immediate area and it would appear that the surface rainfall would cause a fluctuation in moisture content in lower level as well as in upper levels. It has been suggested that perhaps moisture condensation in the upper level in summer time may account for the moisture conditions observed in this portion of the cave. A study of moisture conditions correlated with the rainfall in the immediate region should prove well worthwhile and illustrates the need for extensive study on humidity and temperature conditions of caves in general.

Rate of Cave Fill

The floor of the main lead in Hermit's Cave (near Gandy Sinks, W. Va.) is fast being filled in with mud and silt, if reports by the society are correct. Old-timers report that they were able to walk through all the main passages of this cave. (Incidentally, they report finding the body of an Indian at the extreme end of the cave.) But the exploring party of the society on Labor Day, 1940 had to crawl for over 100 feet in the lowest part of the passage. The Steubenville group plans to complete the exploration of this cave and keep track of the rate of filling in, if such is actually fast enough to be observable. It has never been known what actually became of the Indian body found in the far portions of this cave.

Epson Salt Crystals

Epson Salt Crystals so fine that they resemble a mold or fungus were found recently in Witherose Cave. Unfortunately no pictures were taken of this rare formation. For further information as to these crystals, see the letter of Dr. Scheffer included elsewhere in this issue.

Lake Formation

The pool in Grandpappie's (Ogder's Cave), which prevents access to the main part of the cave is reported by natives to have been formed quite suddenly about ten years ago. There appears to be no noticeable inflow into this pool and no overflow drain has yet been found. Still the level of the pool is reported to remain constant from season to season and year to year. The pool can be drained by syphon, but refills in about one week. This illustrates on a small scale the filling up of passages with water which appear to have occurred at some time or other during the life of most of the main passages of many of our large caves, as for example, Luray, and Seneca Caverns.

BAT COUNTING

In Trout's Cave, Feb. 23, 1941, between 1600 and 2400 bats (*Myotis Sodalis*) were observed in one room alone. Estimates were made by counting representative clusters, and then counting the clusters in a quarter section of the area which the clusters occupied. Counting of small clusters was done individually, while large clusters were estimated by counting the rows in both directions, and by counting the number of bats in the rows in both directions. The largest cluster had 110 bats while the smallest had 12 individuals. The average of the clusters was estimated to be from 25 to 30. The computation of the bat population was made as follows: There were 18 clusters in the area where the clusters were counted. Thirty bats to the cluster gave 560 for the maximum no. of bats for this area, thus giving 2240 bats for the entire room. Allowing 10 per cent error, the maximum number was 2464 bats or roughly 2500. The minimum number by the same procedure was calculated as follows: 18 clusters at 25 bats per cluster, or 450 bats for the counted clusters, or 1800 for the entire room. Allowing 10 per cent error, the results were 1620 or roughly 1600. These figures, 1600 to 2500 represent a wide variation, but should accurately define the actual maximum and minimum limits of the colony. The reason that the figures of 25 to 30 per cluster were used rather than an average of 27 $\frac{1}{2}$ was that they represent the limits of accuracy of the estimation. Thus they serve to more accurately define the actual limits of the size of the bat colony. The average figure of 2050 bats in the colony can be obtained by taking the mean of the two computed limits, if a single average figure is desired.

EQUIPMENT

Due to the transfer of Jean Williams to the west coast, he has had to turn over Chairmanship of the Equipment Committee to Mr. James Lavelle. Members and friends are all urged to make all their purchases of special equipment through the medium of the Equipment Committee. The Equipment Committee now has a fairly complete stock of carbide lamps and parts on hand, and can give immediate delivery on these items.

Funds for making the original purchase of the lamps was advanced by Mr. Williams. A discount of 40 per cent was secured. It is planned to sell all items at list price and use the profit for the stocking of further items of equipment. In the near future it is hoped that the Equipment Committee will also be able to stock hard cave hats and to arrange for the construction of both cave knapsacks and jumper made on our specification. Orders sent to any of the society's officers will be immediately forwarded to Mr. Lavelle, should his address become misplaced.

The next issue of the Bulletin--work is already under way on the next issue of the Bulletin--When the next issue appears is largely dependent upon how rapidly material for it is received--An issue of the Bulletin in Sept. or Oct. is our present aim. Help Make This Your Bulletin--The Editors need more original articles--Make this your Bulletin by your contribution.

C A V E L O G

(Ed. Note. In lieu of publishing a detailed report of every cave visited by the society, a log of all caves visited will be kept and published with but brief reference to the cave structure and the progress of its exploration and study. The complete records of all caves referred to are of course available to any member so interested. A few selected reports will, however, be published in each issue of the bulletin as space allows. Comment on this new policy is solicited.)

The cave log constitutes a brief summary of the caves for which data has been furnished to the files of the society. For a more elaborate report, reference may be made to the files of the individual cave. The caves here below listed include all of those for which the society has the individual record file. Further cave logs issued in succeeding issues of the bulletin will be limited to new caves and unusual facts concerning previously recorded caves.

North Carolina

Bat Cave--near Lake Lure, N. C., shown on State road maps, but is misplaced. A small granite cave, much like Rumbling Bald, only smaller; partially explored; no record of fauna.

Rumbling Bald Cave-- Lake Lure, N. C. - A full report is previously set forth in this bulletin.

Pennsylvania

Dulaney's Cave- Uniontown, Pa. Large cave reported in Stone's book on caves of Pa. Surveyed for fauna.

Needy's Cave-- Waynesboro, Franklin Co., Pa. A medium size cave, reported in detail in Stone's book on Pennsylvania Caverns; explored and mapped about 200' further than set forth by Stone; further work still to be done; has running stream; surveyed for fauna.

Virginia

Allen's Cave-- Front Royal, Warren Co., Va. reported in some detail in this issue of the bulletin.

Baldwin's Caves-- Front Royal, Warren Co., Va. Four small caves; reported in some detail in this issue of bulletin.

Beatty Cave-- Milboro Springs, Bath Co., Va. A small dry single room cave; explored and mapped.

Blowing Cave--Milboro Springs, Bath Co., Va. Reported in full in June bulletin of U. C. Speleological Society, June, 1940.

Clark's Cave- McClung, Bath Co., Va. Medium size cave with fairly complicated passages; partially explored and mapped; map completed of explored portions; a few formations; no running water observed.

Fountain Cave-Grottoes, Rockingham Co., Va. A medium size cave; with large rooms and considerable decorations; entrance about 1000' from Grand Caverns (old Viers Cave, now commercial); explored and surveyed for fauna.

- Front Royal Caverns-- Front Royal, Warren Co., Va. Several small sink holes; one or two fair size rooms; a few good formations; attempts are being made to develop these caves commercial;.
- Horse Shoe Cave-- Front Royal, Warren Co., Va. This cave fully reported in this issue of the bulletin.
- Jenning's Cave-- Lacy Springs, Rockingham Co., Va. Small cave reported in bulletin, D. C., June, 1940.
- John's Cave-- Ninevah, Warren Co., Va. A small cave; explored, mapped, and surveyed for fauna; possesses permanent pool, but no running water; no formations worth mentioning.
- Limekiln Cave-- Lexington, Rock Bridge Co., Va. A small but spacious cave; explored and mapped; has running stream- one pit 20' deep, needs rope ladder; a little formation; no record of fauna.
- Madden's Cave-- New Market, Shenandoah Co., Va. Reported in full in bulletin of D. C. June, 1940.
- Ogden's Cave-- (also known as Grandpappy's Cave) Middletown, Frederick Co., Va. A reputedly large but probably medium size cave. Exploration is difficult due to siphon type lake 200' from entrance. Cave explored and mapped for over 1000'. Excellent rimstone formations; running stream; no record of fauna; more work of exploration to be done.
- Reed's Cave-- Lacy Springs, Rockingham Co., Va. A small cave reported in D. C. bulletin, June, 1940.
- Rhea's Cave-- Milboro Springs, Bath Co., Va. Small cave reported in bulletin of D. C. June, 1940.
- Rock House Cave-- White Hall, Frederick Co., Va. Small, single passage cave; explored, mapped; some fauna collected.
- Showalter Cave-- Lexington, Rock Bridge Co., Va. Size unknown; exploration halted after 400' by series of lakes; most of passages small; part explored fully mapped; some fauna collected.
- Spring Hill Cave-- Lexington, Rock Bridge Co., Va. A medium size cave; extremely muddy and extremely complicated; may be classified as dangerous; not recommended for the novice; permanent stream; no large rooms; little formation; several drops in excess of 20'; partially explored; some fauna collected; more work to be done.
- Sugar Nut Cave-- Mauzy, Rockingham Co., Va. A small cave; some very interesting formations, with bluish tinge; partially mapped and explored; some fauna collected. Springs, Bath Co., Va.

Witherow's Cave-----Reported in detail in Bulletin of D. C. June, 1940. Since then new rooms discovered; also running stream discovered; new surveys for fauna; further detailed reports expected to be released.

West Virginia

- Bender's Cave-----^{HAINESVILLE}~~Kearneyville~~, Jefferson Co., W. Va. A small well-decorated cave; kept closed by owner; explored and mapped; some photos taken by Eno.
- Brandywine Cave----- (also Prop's Cave) Brandywine, Pendleton Co., W. Va. A medium sized cave; fairly well decorated; has 75' drop into last room; exploration conducted over drop for first time under leadership of Arthur Lembeck; no reports as to fauna.
- Briar Sink Cave-----Summit Point, Jefferson Co., W. Va. A small sinkhole; mud clogged after 60'; explored, but not worth mapping.
- Bruce Town Cave-----Bruce Town, Jefferson Co., W. Va. A small cave; probable remnant of large system; would require digging to fully explore; fauna collected.
- Bird Orchard Cave-----Middleway, Jefferson Co., W. Va. A small mudfilled sink; fully explored; too small for mapping. No fauna.
- Cedar Hill Cave-----Cabins P. O., Pendleton Co., W. Va. Small cave; explored and mapped; fauna collected; no running water.
- Clyde Cochrane Sinks--Hillsboro, Pocahontas Co., W. Va. Medium size cave; ends in lake; cave consists generally of a recent surface drainage channel; explored and mapped; fauna collected, but none from lake.
- Crystal Lake Cave-----Charlestown, Jefferson Co., W. Va. A small excommercial cave; has small lake; no records of fauna.
- Dead Dog Cave-----Charles Town, Jefferson Co., W. Va. This cave reported in full in this issue of the bulletin.
- Donaldson Cave-----^(SPRING MILE)Hedgesville, Berkley Co., W. Va. A fair size cave but very (?) dangerous; partially water filled and roof collapsing; only explored cursorily; no record of fauna.
- Dyer's Cave-----Wardensville, Hardy Co., W. Va. Medium size cave; running stream; entire cave old stream course, consistently dropping at a rate of 15 or 20 degrees; surveyed and mapped; some record of fauna.
- Gandy Sinks-----Oceola, Tucker Co., W. Va. One-half mile natural tunnel with flow stream; average width of cave approximately

0 and height 20'; at lower end has several large rooms and some formation. In time of flood stream fills entire cave, so is dangerous at such times; mapped and surveyed for fauna.

George Washington Cave-- Charles Town, Jefferson Co., W. Va. Ex-commercial; very small; practically no formations; is of historical interest; mapped and surveyed for fauna.

DITMER

Harper's Ferry Caves-- Bulova, Jefferson Co., W. Va. Several sink holes in series; apparently disconnected; all possess one or two fair-sized rooms; partially explored.

Hermit's Cave-- Occola, Tucker Co., W. Va. Medium size cave; partially explored and mapped; more work yet to be done.

Hellhole-- Riverton, Pendleton Co., W. Va. A very large cave; large rooms and passages on several levels; initial drop into cave 167'; exploration believed to be complete; some record of fauna; subject matter of a report in bulletin of D. C. June, 1940.

Higgenbottom Cave-- Frankfort, Greenbrier Co., W. Va. Referred to in State Geological report on Greenbrier Co. Surveyed and mapped; some record of fauna; running stream throughout the entire length.

John Brown's Cave-- Harper's Ferry, Jefferson Co., W. Va. Fully reported in bulletin of D. C. June, 1940.

Linbergh's Hole-- Rippon, Jefferson Co., W. Va. A small sink hole; digging is required to effect entry; no exploration as yet; mouth surveyed for fauna.

Moyer's Cave-- Halltown, Jefferson Co., W. Va. Medium size cave; two levels; active stream; large lakes in wet weather; partially reported in bulletin of D. C. June, 1940. Now fully explored and mapped; some record of fauna.

Peacock Cave-- Smokholes, Pendleton Co., W. Va. Medium size cave lying near crest of mountain; very dry and dead; many dead formations; partially explored and mapped; some record of fauna.

Perry's Hole #1-- Clip, Jefferson Co., W. Va. Small sink hole; reported in June bulletin, D. C. June, 1940.

Perry's Hole #2-- Brucetown, Jefferson Co., W. Va. Entrance partially clogged; needs digging; no exploration as yet.

Rocky Bottom Caves-- Bunker Hill, Jefferson Co., W. Va. A group of small caves; largest about 100' in length; rocky bottoms are probably the remains of a collapsed cavern of considerable size and extent; existing caves appear to be only small side passages of original system; partially explored,

not mapped; some fauna collected.

Ruddle's Cave-- Riverton, Pendleton Co., W. Va. A medium size cave; some interesting formations, one a red flowstone column, another a pure white cascade, 35' high; entrance passage for 100' or more almost impassable for a fat man; a 20' rope ladder is needed for descent into main room; explored, mapped, and some fauna collected.

Schoolhouse Cave-- Riverton, Pendleton Co., W. Va. Large cave exceedingly dangerous and difficult to reach main portion; exploration in progress two years still continuing; rock-climbing ability a pre-requisite for one undertaking to enter the main parts of the cave. Running stream; many interesting formations; many large pits or wells; record of fauna from this cave still quite deficient; this cave reported in detail in bulletin, January, 1941. Main exploration work and mapping done by rock-climbing group.

Sirmon's Cave-- Cave P. O. Pendleton Co., W. Va. Small cave with fair formations; a lake; and largest single room (420 X 165 ft.) reported in West Va.

Silber's Cave-- Tompshawk, Berkeley, W. Va. Medium size cave; a maze of small cross passages; fairly well explored and mapped; work still continuing; surveyed for fauna; additional notes on cave in this bulletin and in bulletin of D. C. June, 1940.

Snedgar's Cave-- Droop Mountain, Pocahontas Co., W. Va. Large cave with several large rooms and maze of smaller passages; worked for salt peter during Civil War; practically no formations; no running water, but permanent pool; partially explored and mapped; some record of fauna.

Trout Rock Cave-- Franklin, Pendleton Co., W. Va. Medium size cave; fairly complicated passages; very dry and dirty; all passages appear to be covered with soot; excellent display of fossils; partially explored and mapped; some fauna collected.

Whitings Neck Cave-- (also known as Mary Miller Cave) Scrabble, Berkeley Co., W. Va. A small cave with good decorations; one 45' drop; no running water; (considerable number of pictures taken); a good cave for photography; explored, mapped and surveyed for fauna.

DEVELOPED CAVES AND SIMILAR COMMERCIAL ENTERPRISES

Since the organization of our society, the following have either actively cooperated with the society in its study of Speleology or extended to the Society or individual members thereof some specific courtesy.

Kentucky

Floyd Collin's Crystal Cave

Hidden River Cave

Kentucky

Mammoth Onyx Cave

Maryland

Crystal Grottoes of Md.

New Mexico

Carlsbad

New York

Howe Caverns

North Carolina

Chimney Rock

Linville Caverns

Pennsylvania

Lincoln Caverns

Virginia

Dixie Caverns

Endless Caverns

Luray Caverns

Shenandoah Caverns

Skyline Caverns

West Virginia

Seneca Caverns

Smokehole Caverns

SYSTEMATIC LIST OF THE FAUNA COLLECTED FROM CAVES

(This list, as compiled from the records of the Fauna Committee of the National Speleological Society is necessarily incomplete both from the fact that some specimens still await identification by specialists and because new additions have been to the records since this list went to press. Such additions will appear from time to time in subsequent reports of the Fauna Committee to be published in the Bulletin.

PHYLUM PLATYHELMINTHES
Class Turbellaria

(Planarian worm- sp?)

Needy's Cave, Waynesboro, Franklin Co., Pa.- a flatworm blind and without pigment was common in this cave on bits of wood and other debris in the cave stream. This may belong to the genus *Speophila* since a species of this genus (*S. pricei*) has been reported from both Veiled Lady Cave, Center County and Brownstone Cave, Pennsylvania by Gerrold.

PHYLUM MOLLUSCA
Class Gastropoda

The Molluscan fauna of the caves constitute both the true cave snails which reveal modifications associated with cave life and other snails which do not form a portion of the cave fauna but which are snails which ordinarily live in leaf-mold in damp woodlands on the outside and become a part of the cave picture only insofar as the shells are drifted in by surface waters through sinks, etc. The latter species will not be enumerated in this report.

Cave Snail (*Fontigens* sp.)

Skyline Caverns, Front Royal, Warren Co., Va.- this snail lives on the rocks in the flowing stream in the cave. According to Dr. Morrison it represents a new species and, while related to the

snails of the genus *Fontigens* which inhabit springs and spring-fed streams, it, unlike the species on the outside, is partially blind.

Cave Snail (Red snail)

Skyline Caverns, Front Royal, Warren Co., Va.- this snail is totally unrelated to the above species and apparently belongs in a distinct genus. It is totally blind and the only pigment is a bit of red in the nervous system. Unlike *Fontigens*, which inhabits the flowing stream in the cave, this species was taken from a series of cascading flowstone pools in the cave. While this species has no close relatives in the Shenandoah region, its relatives are ones which live in rapid water.

PHYLUM ARTHROPODA

Class Crustacea

Order Copepoda

(Copepods- spp?)

John's Cave, Ninevah, Warren Co., Va.- a small series of as yet unidentified copepods were collected from a small pool in the cave.

Order Isopoda

Cave Isopod (*Asellus* sp.)

Skyline Caverns, Front Royal, Warren Co., Va.- this isopod, probably a new species, is common throughout the stream in the cave.

Order Amphipoda

Cave Amphipod (*Synpletonia* sp.)

Skyline Caverns, Front Royal, Warren Co., Va.- this is a blind, unpigmented species and according to Dr. Clarence K. Shoemaker of the United States National Museum represent a new species. Specimens of blind, unpigmented amphipods have also been recorded from Needy's Cave, Waynesboro, Franklin Co., Pa. and Kenney-Simmons Cave, Cave, Pendleton Co., W. Va. These may well belong to the same genus and may also prove to be new species.

Order Diplopoda

Cave Millipede (sp?)

Skyline Caverns, Front Royal, Warren Co., Va.; Needy's Cave, Waynesboro, Franklin Co., Pa.- two millipeds which were pale and washed with respect to color collected in these caves are awaiting identification, one being in the hands of Dr. H. F. Loomis, United States Department of Agriculture and the other the United States National Museum.

Class Insecta

Order Orthoptera

Cave "Cricket" (*Couthophilus* sp?)

Whiting's Neck Cave, Berkeley Co., W. Va.; Trout Rock Cave Mountain Cave, Franklin, Pendleton Co., W. Va.- this form was common in both of these caves where it occurred just inside the mouths in cracks and crevices of the rocky walls.

Cave Cricket (*Hadenococcus subterraneus*)

Cochran's Cave, Pocahontas Co., W. Va.

Order Hemiptera

Shield-bug (*Arilus cristatus*)

Order Diptera

Mosquito (*Anopheles punctipennis*)

Whiting's Neck Cave, Berkely Co., W. Va.- many mosquitoes have been observed in the caves visited but those for the most part are still awaiting identification. This group is of particular interest because of the fact that the genus *Anopheles* constitutes one of the kinds of malaria mosquitoes.

Class Arachnida

House Spider (*Theridion tepidariorum*)

Cochran's Sink, Pocahontas Co., W. Va.- the spiders are a common element of the life found in very many of the caves but they merely find the caves a convenient place to live where there is abundant food and efficient shelter.

PHYLUM CHORDATA

Class Amphibia

Crimson Spotted Newt (*Triturus v. viridescens*)

Showalter's Cave, Lexington, Va.; Gandy's Sinks, Oscecola, W. Va.

Red-backed Salamander (*Plethodon cinereus*)

Whiting's Neck Cave, Berkely Co., W. Va.; John's Cave, Ninevah, Warren Co., Va.- all specimens were collected under rocks and leaf-mold, etc. around sink-hole entrances.

Slimy Salamander (*Plethodon glutinosus*)

Siler's Cave, Tomahawk, Berkely Co., W. Va.

Four-toed Salamander (*Hemidactylium scutatum*)

Gandy's Sinks, Oscecola, Randolph Co., W. Va.

Purple Salamander (*Gyrinophilus p. porphyriticus*)

Hermit's Cave, Randolph Co., W. Va.; Cochran's Cave, Pocahontas Co., W. Va.

Two-lined Salamander (*Eurycea b. bislineata*)

Skyline Caverns, Front Royal, Warren Co., Va.- two specimens taken on two separate occasions from the banks of the cave stream.

Long-tailed Salamander (*Eurycea l. longicauda*)

Kenney-Simmons Cave, Cave, Pendleton Co., W. Va. - a larval specimen collected from this cave is believed referable to this species.

Green Frog (*Rana clamitans*)

John Brown's Cave, Harpers Ferry, Jefferson Co., W. Va.- a juvenile of this species was collected here in winter where it was presumably hibernating.

Class Reptilia

Garter Snake (*Thamnophis s. sirtalis*)

Siler's Cave, Tomahawk, Berkely Co., W. Va.; Gandy's Sinks, Oscecola, Randolph Co., W. Va.

Class Mammalia

Little Brown Bat (*Myotis l. lucifugus*)

Caves- Dulane Cave, Union Town, Pa.
Social Bat (*Myotis sodalis*)
 Madden's Cave, New Market, Shenandoah Co., Va.; Witheros Cave,
 Milboro Springs, Bath Co., Va.
Trouessart's Little Brown Bat (*Myotis keeni septentrionalis*)
 Witheros Cave, Milboro Springs, Bath Co., Va.
Georgian Bat (*Pipistrellus s. subflavus*)
 Madden's Cave, Milboro Springs, Bath Co., Va.; Jennings Cave,
 New Market, Va.; John's Cave, Ninevah, Warren Co., Va.; Sky-
 line Caverns, Front Royal, Warren Co., Va.; Luray Caverns,
 Luray, Va.; Saltpeter Cave, Luray, Va.; Schoolhouse Cave, W.
 Va.; Siler's Cave, Tomahawk, W. Va.; Peacock Cave, Petersburg,
 W. Va.; Needy's Cave, Waynesboro, Franklin Co., Pa.; Rocky Bottom
 Cave, George Washington's Cave, Dead Dog Cave.
Large Brown Bat (*Eptesicus f. fuscus*)
 Madden's Cave, Milboro Springs, Bath Co., Va.; Witheros Cave,
 Milboro Springs, Bath Co., Va.; John's Cave, Ninevah, Warren
 Co., Va.; Saltpeter Cave, Luray, Va.; Whiting's Neck Cave,
 Berkely Co., W. Va.; Trout Rock Cave, Franklin, Pendleton Co.,
 W. Va.; Schoolhouse Cave, W. Va.; Needy's Cave, Waynesboro,
 Franklin Co., Pa.; George Washington's Cave.
Evening Bat (*Nycticeius humeralis*)
 Whiting's Neck Cave, Berkely Co., W. Va.
Long-eared Bat (*Corynorhinus r. rafinesquii*)
 Schoolhouse Cave, W. Va.; Hell Hole, W. Va.; Peacock Cave, W. Va.,
 and Trout Rock Cave, W. Va.

Respectively submitted,
 James A. Fowler
 Fauna Committee

