

The Dalhousie Gazette

The GAZETTE

apologizes to Daniel O'Connor for the layout of his article in last week's issue.

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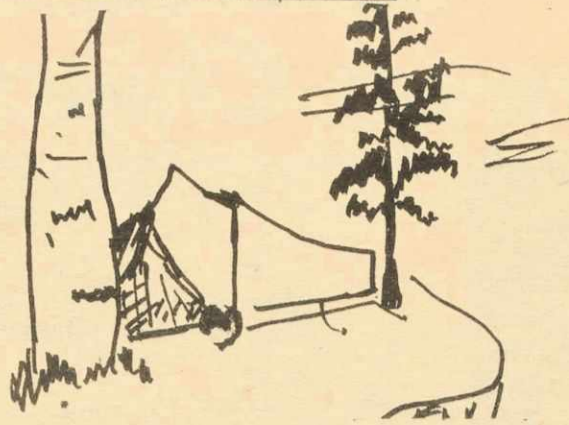
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# Outdoors

## SPELUNKING

"By the utter silence, the awesome, almost tangible darkness, a compelling backdrop to the distant magnified sound of dripping water ... a world totally divorced from the surface."

M. Major

For those of you who haven't had the opportunity to enjoy a Nova Scotian cave, you may be suffering from several popular misconceptions.

The large caverns holding spectacular geologic structures, blind albino animals and the remains of old cultures is a unique experience while the constant fear of getting lost and having to rely on rope techniques in order to explore it properly is the summation of these misconceptions.

Although true elsewhere, in Nova Scotia we have none of these features. Our caves were destroyed about 10,000 years ago by glaciers and there hasn't been enough time to allow the geologic processes or evolution to reproduce any of these more well known characteristics.

Not being pessimistic, we don't have them but have many other fine attractions that make our caves as interesting as those further south.

In Nova Scotia, little is needed to explore our caves except a flashlight. In a very few caves and in several old mineshafts, ropes are necessary to see all but for the most part exploration is done by simply walking or crawling. A flight suit to

cover your clothes will save them from the mud while a light attached to a helmet will leave your hand free in case of a fall.

Hayes Cave is a typical Nova Scotian cave. For this reason we will use it as an example to illustrate caves in general.

This cave is eroded out of gypsum (CaSO<sub>4</sub>.2H<sub>2</sub>O) of the Windsor Group. The calcium sulphate was laid down in lagoons of the Windsor Sea about 300 x 106 years before present. It is a soft, easily eroded chemical precipitate rock occurring in all Atlantic Provinces.

These lagoons of Mississippian Age were constantly evaporated to produce the beds that occur (average forty feet in thickness) throughout the area. The original form of this calcium sulphate was probably anhydrite (CaSO<sub>4</sub>) which was later converted to gypsum.

Apparently, the glaciation during the Pleistocene destroyed any caves that were formed, starting cave formation over again.

Hayes Cave, located at South Maitland, is known by many different names — Hayes Pit Cave, Five Mile River Cave, and Maple Grove Cave. Although the first is by far the commonest, the other three are still in use and are in the old literature. The older, local inhabitants of the area still call it The Great Mammoth Cave from their youth.

The entrance to the cave is located at the top of a large scree slope of crushed gypsum eroded from the fragile cliff face above it.

Eighty years ago, oxen with loads of hay could be driven into the cave mouth. Prest (1911) said the entrance was 20 feet wide and eight feet high. Stevenson (1954?) said that it was 15 feet wide and 6 feet high. Tashereau (1963) reported that it was 16 feet wide and 3 feet 11 inches high with a large block of gypsum blocking a good part of the entrance. As of Jan. 1973 the entrance was 12 feet 8 inches wide with most of this blocked so that entrance is available through a 60 inch by 70 inch hole. As can be seen it soon will be gone, unless something, man included, changes things.

When one does enter he is met by a constant temperature of 6.8°C (44.2°F). This is regardless of the external temperature, which on recording days were at 100.4°F and 8.5°F.

At the front of the cave is a huge vaulted room with several ponds at the bottom. Even as you climbed up the slope to reach the entrance you must then climb down to reach the ponds. If it is winter then ice stalagmites two feet high will be found at the entrance.

The cave extends beyond the first big room down a continually narrowing corridor full of fallen debris until it reaches an apparent end where one can climb up to a small room and see daylight. This summer, it is told, this hole, through which sunlight shone, has been enlarged either naturally or artificially so that it may now be squeezed through.

At this apparent end, one may carry on farther down another side section that gets increasing smaller till one has to crawl. The cave is approximately 1200 feet long but it will take several hours to explore it and all its side passages completely.

The ponds have little life though show fluctuations of water level throughout the year. In the ponds one can occasionally find water insects, green frog tadpoles, and sticlebacks. All of these are normal in all respects either entering the cave temporarily or by the hands of some person. In a limestone cave in Cape Breton, three albino fish were seen but until they are identified, they remain unknown for certain.

Water analysis shows that the ponds instead of having the expected equal abundance of calcium and sulphate as it should, since gypsum is soluble in water one part per 495, have double the amount of sulphate. This assumingly is



proof of the presence of much sulphate producing Thiobacteria.

Algae grows occasionally in the water but is always present at the cave mouth where there is abundant light. The two most common species being *Gloucapsa* sp. and *Protococcus* sp.

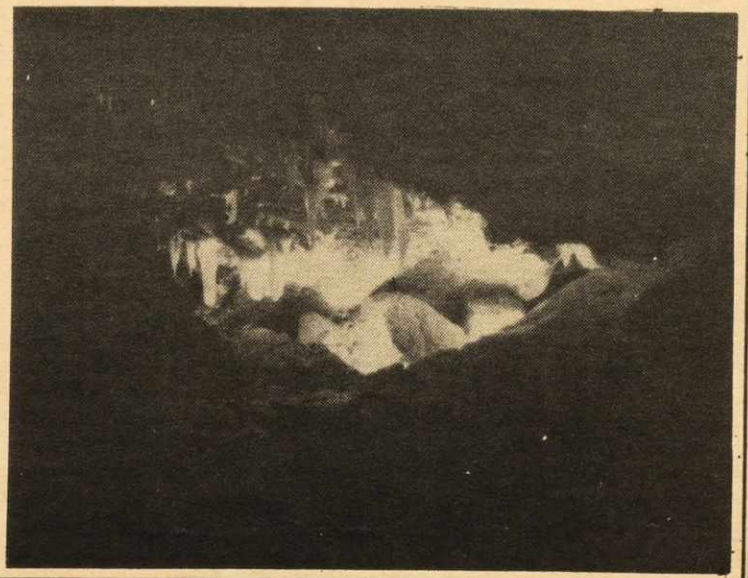
Fungal mycelia and mould grow extensively on feces in the cave. This feces being nearly all porcupine but in some areas, bat. This feces provides an environment for the cave's microarthropoda fauna. Calder and Bleakney (1965) compiled a large list of these from Frenchman's Cave, near St. Croix, Nova Scotia.

The porcupine is a frequent visitor as are three species of bats that hibernate in the cave. The little brown bat *Myotis lucifugus*, Keen's *Myotis M. Keenii* and the eastern pipistrellus *Pipistrellus subflavus* form a colony that numbers about 6100 + 10% in May.

Hopefully points of interest to all people have been shown and people will accept Nova Scotian caves for what they have to offer and not be disappointed about what they don't have.

Its fun, easy, and although potentially dangerous, if one is careful, then well worth the effort. Because of their small size and isolation in relation to the rest of the natural world, the effects of man are many times more obvious and destructful. Remove all garbage from the cave and leave all natural biological and geological features alone.

Photo by Dave Blake



## Why not.

If you want your motivation to infect others, then there's no reason why not.

Think about us and yourself; then think about what we can accomplish together.

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