

The Skipton Lava Caves

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The well-known Skipton Caves, about 30 miles west of Ballarat, have been described before, but so far as is known no plan has ever been published, an omission which can now be rectified. The caves are located on the lower slopes of Mount Widderin, on the property of the same name about three miles south of Skipton on the Camperdown road. There is only one entrance, which leads to a number of chambers, and although there are a number of other hollows on the hillside, none of them leads in for more than a few feet.

The cave plan was surveyed by P. Matthews, C. D. Ollier and G. Rebbechi during an excursion of the Victorian Cave Exploration Society, using a prismatic compass and wire-reinforced linen tape. The cave sections were surveyed by M. C. Brown and C. D. Ollier using an abney level. A source of error in such a survey is the lack of any definite edge to the cave in such places as rock-falls or where the floor and ceiling meet at such a low angle that the outer edge is inaccessible and would, if mapped to the limit, give a false impression of the size of the main cave.

The caves are volcanic in origin and are of the type known as lava tunnels, which are fairly common in Victoria, as at Byaduk, Porndon and Mount Hamilton. These are formed when liquid lava inside a flow (in this case, erupted from Mount Widderin, which is an extinct volcano) continues to drain away after the cooled surface layer has solidified. In the right circumstances the liquid lava can flow out leaving a gas-filled hollow behind. When such a hollow becomes open to the surface, usually by a later collapse of the roof, it becomes a cave and awaits exploration and description.

The typical shape of lava caves is a rounded arch or tunnel. The longer the cave relative to its breadth the more perfectly tunnel-shaped it will be; if the cave is rather broad for its length it becomes more dome-shaped.

The chambers at Skipton tend to be broad in comparison with their length, and elongated domes are typical. The Ballroom is the nearest approach to a true tunnel, and has a curved roof which comes right down to the floor at the edges. Remnants of tunnel shape can be seen in the Main Chamber, but the Skipton Caves have suffered extensive collapse, and so the original shape is not very obvious. Even the small chambers have collapsed, and the floors are covered with rockfall debris. The Main Chamber and the Ballroom are the largest chambers in the volcanic caves of Victoria.

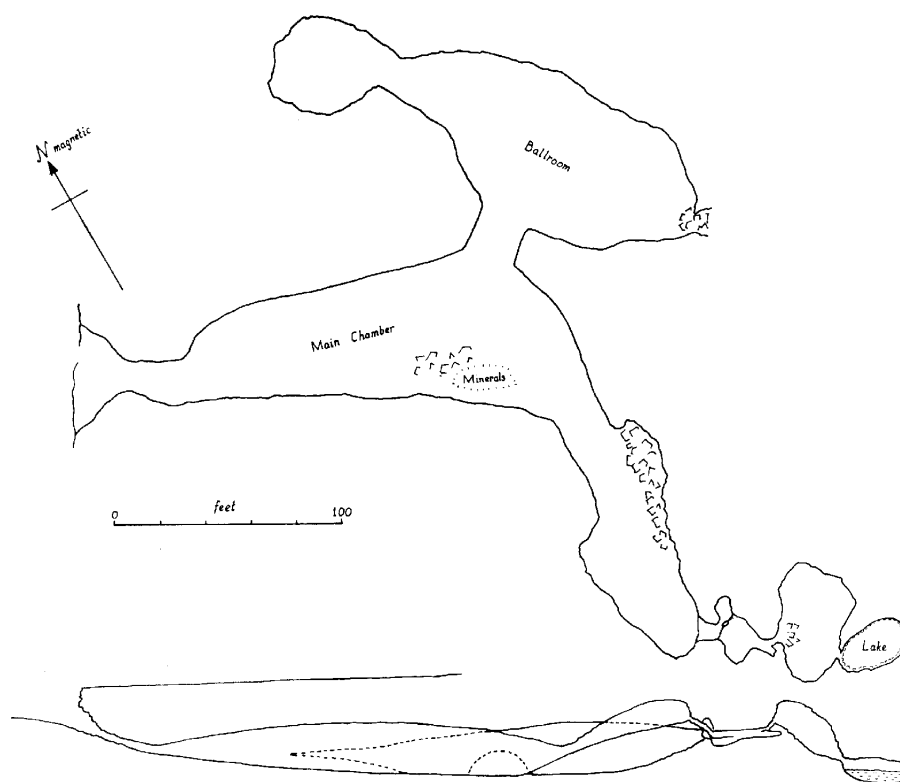
In plan, it is seen that the caves are not aligned in only one direction, but the Ballroom and the Main Chamber are sub-parallel. Some other chambers appear to be more or less in line with the Main Chamber but it is clear that each chamber was formed to some extent independently. The connexion between the Ballroom and the Main Chamber is a fairly small opening, and is lower than the roof of either of the large chambers.

The Skipton Caves are unusual in containing permanent water, and the lowest chamber is occupied by a small lake. This was full of water at the time of the survey, and so was not accurately surveyed, but the water is over six feet deep, and several yards, perhaps ten, across. It has a remarkable blue colour when seen by either electric or acetylene lamps, although the water is said to be quite pure. The surrounding rocks are not at all blue, and the water appears clear when seen at the surface. It is used for irrigation, and although the lake-level may become low in times of drought the lake has never run dry. The surrounding country is relatively dry, due to the permeability of the volcanic rocks, and the underground lake must owe its existence to an impervious layer at depth.

No bats live in the cave at present, but in 1875 Selwyn wrote as follows:

Thousands of bats inhabit these caves, hanging in clusters from the roof like a swarm of bees, and on the floor are large conical mounds of rich brown earthy matter, containing imbedded pieces of crystallized gypsum. The deposit itself consists entirely of the excrement of the animals.

The presence of this long-undisturbed guano in association with basalt (which may have provided magnesium in solution) has led to the growth of some extremely rare minerals. Struvite, the main one, is found only in Skipton Caves and Patagonia. It is a complex magnesium ammonium phosphate, and only the unique conditions offered by the Skipton caves have led to its growth. Other minerals present are newberyite, dettmarite, hannayite and schertelite (synonymous with muellerite), and there are yet others which were reported in early papers but are now unknown. The locality of the mineral deposit is shown on the map. In the past, several tons of the guano were removed for use as fertilizer, but a good deal was also taken for minerals, and specimens are to be found in museums throughout the world. Fletcher reported in 1895 that several tons of guano were turned over, but no bones or other fossils were found.



SKIPTON LAVA CAVE: PLAN AND PICTORIAL ELEVATION

There is a vertical exaggeration of 2 X in the elevation

There are no calcite stalactites at Skipton, such as are found in the lava caves at Byaduk and Mount Hamilton, and there are no good lava stalactites or other decoration, presumably because of the large amount of collapse that the Skipton Caves have undergone.

Thanks are due to Mr C. Notman, owner of "Mount Widderin", for his continued interest and assistance in all aspects of the examination of the caves.

REFERENCES

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