

**THE
AMAZING STORY
OF
THE ADMIRAL'S STALAGMITE**

THE STORY OF A HUGE STALAGMITE
THAT WAS REMOVED
FROM A CAVE IN BERMUDA AND
TRANSPORTED TO SCOTLAND IN 1819

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INTRODUCTION

This history chronicles the epic story of the stalagmite that was removed from Admiral's Cave in Bermuda in 1819 by Admiral Sir David Milne. The account records the known events, from the time that this huge stalagmite was removed from the cave, its journey abroad, and events up to the time of its demise, far away from the place that it was created.

ADMIRAL'S CAVE

Bermuda's Admiral's Cave is located between Blue Hole Hill and the waters of Ferry Reach, in Hamilton Parish.

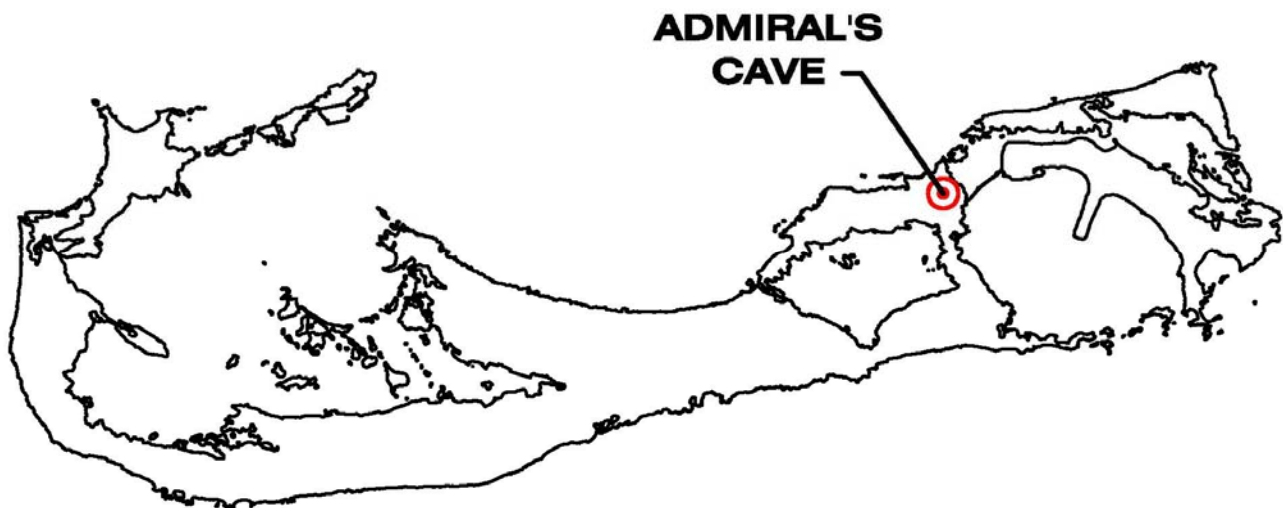


Figure 1: The location of Admiral's Cave in the Isles of Bermuda

The entrance of the cave is approximately 220 feet (67metres) north of the nearest public road known as Blue Hole Hill. The entrance to the cave and the western extremities of the underground cave lie on the property of Wilkinson Estates Limited. The remainder of the underground portion of the cave lies within property of Grotto Bay Properties Limited.

It is not known when Admiral's Cave was discovered. It was, however, definitely known in 1819, as this was the year that Admiral Sir David Milne removed the stalagmite from the cave.

Such was the magnitude of the task of removing the stalagmite that even today this cave is known as "Admiral's Cave". The name has been retained to the present day. At some time in the past the cave had been developed as a show cave. Concrete trails have been installed and a small retaining wall has been erected, above a particularly steep slope, to support the trail.

There is no known historical record of this cave having been used as a show cave. There is only the concrete trail that remains as the evidence of this use.

There is no evidence that the cave has ever been illuminated by electricity and as this has been the method used in illuminating caves in Bermuda during the twentieth century it is concluded that the period that the cave was used as a show cave was in the 1800's.

The cave has lain unprotected for nearly two hundred years. During this time the cave has been vulnerable to many unauthorised entries. Sadly, the cave now falls into the caving term "dirty" in that virtually all of the more delicate formations have been removed from the cave, including the Admiral's Stalagmite.

Admiral's Cave is an unusual cave in Bermuda as virtually the entire cave is above today's sea level. There are only three small areas that descend below sea level. Tidal lakes infill these substantially lower lying parts of the cave.

THE ADMIRAL

Admiral Sir David Milne, son of David Milne of Edinburgh and Susan Verner of Musselburgh, was born in Edinburgh on 25th May 1763. He entered the Royal Navy in May 1779 and became one of the best known officers of his time. His services have been described as brilliant and included the War of 1812, the Pennisular Campaign and engagements with the vessels of Napoleon.

Admiral Sir David Milne was Commander-in-Chief of the British North American and West Indian Station for the three years ending in the summer of 1819. During this term Sir David passed a part of every winter in the genial climate of Bermuda.

He took much interest in the various objects of natural history abounding in the island, and particularly in its remarkable caves. Possessing some knowledge of geology, and being a personal friend of Professor Robert Jameson of the University of Edinburgh, who was then collecting specimens from all quarters for a Museum, Sir David resolved, on the expiry of his command, to bring home with him some of the beautiful calcareous deposits from the caves of Bermuda, and present them to the Museum.

Admiral Sir David Milne served his country for 60 years in the Royal Navy. He died at sea on 5th May 1845, aged 82 years whilst returning to Scotland from Devonport, at which station he had been Commander in Chief for three years.

On his return to Scotland in 1819 he entered politics and was elected Member of Parliament for Berwick in 1820.

THE ADMIRAL'S SPECIMENS

The calcareous deposits collected by Admiral Sir David Milne consisted firstly of, crusts of crystallised matter coating the floor, sides and roof of the caves; secondly, icicle-shaped formations attached to and pendant from the roof; thirdly, columnar looking deposits resting on the floor, with broad rounded tops.

The first mentioned deposits could have been flowstone, draperies and even helictites. The second mentioned deposits would be stalactites. The third mentioned deposits would be stalagmites.

It is believed that all of these specimens were transported to Professor Jameson of the University of Edinburgh.

THE STALAGMITE

It is recorded that two stalagmites were brought to the College Museum. One is stated to be more than six feet (1.83 metres) in height. This stalagmite was exhibited at the door of the College Museum. It is not known from which cave this smaller stalagmite was taken from.

Another stalagmite was described as being too ponderous to be placed in the College Museum. This stalagmite measured 11 feet 3 inches (3.43 metres) in height. It had an average diameter at the base of 2 feet 2 inches (0.66 metres) and a girth halfway between the base and the top of 7 feet 4 inches (2.23 metres). The diameter of a circle with a circumference of 7 feet 4 inches is 2 feet 3 inches (0.71 metres).

Supposing that the volume of the stalagmite comprised 44 cubic feet (4.09 cubic metres) of calcite and that each cubic foot weighed 170 lbs. the weight of the stalagmite was calculated to comprise nearly three and a half tons (long tons).

The size of the base of the stump of the Admiral's Stalagmite, as it exists today, is in a generally oval configuration with a major axis measuring 2 feet 8 inches (0.81 metres) and a minor axis measuring 2 feet 2 inches (0.66 metres).

In 1864-5 it is recorded that this large stalagmite was too ponderous to be placed in the College Museum and that it had always lain in the vestibule of the Mathematical Class-Room of the College of Edinburgh.

REMOVAL OF THE STALAGMITE

The stalagmite was removed from the cave in 1819 by Admiral Sir David Milne.

In 1864-65 David Milne Home, the son of Sir David Milne, wrote that his father caused the stalagmite to be sawn across near its point of attachment to the floor. It was first sawn half across, and a nick made with the saw on the opposite side; it was then pulled over, so as to cause fracture, the column having been previously secured by strong tacklings and shears to prevent it falling over altogether.

The remaining part of the trunk of the stalagmite shows that prior to the saw cut a total of sixteen holes had been drilled around the girth of the stalagmite. These holes have a diameter of one inch (24mm) and were drilled a minimum of four inches (100mm) and a maximum of eleven inches (28mm) into the base of the stalagmite.

As the first step in the removal of the stalagmite the one inch (24mm) diameter would have been drilled, by hand, around the circumference of the stalagmite. Following the drilling, the stalagmite would have been sawn. The pressure would then have been applied by pulling on the stalagmite with block and tackle until the new perforated base fractured.



Figure 2: The remaining stump of the stalagmite

The position of the Admiral's Stalagmite is shown on the following plan of the cave.

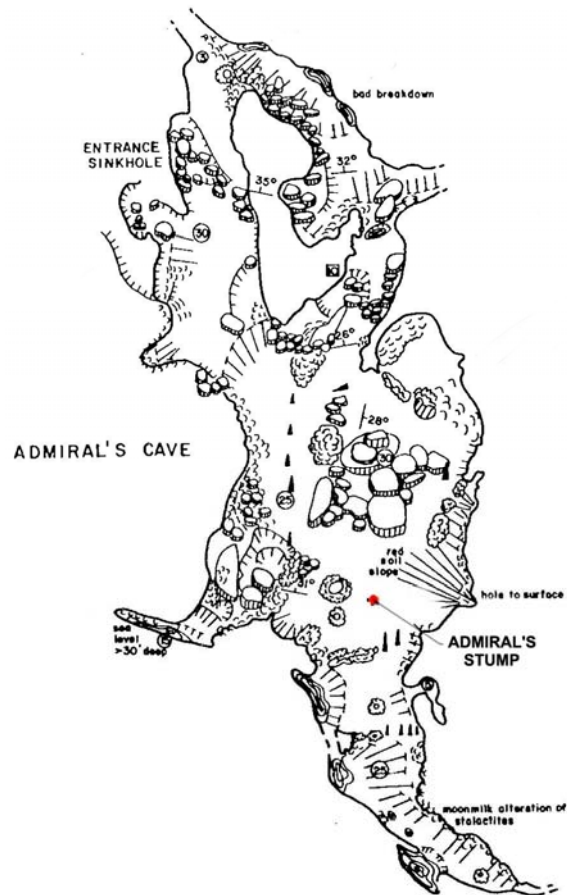


Figure 3: The position of the Admiral's Stalagmite in the cave

With an estimated weight of nearly three and a half tons the stalagmite would have presented Sir David Milne with quite a task to remove it from the cave.

The stump of the stalagmite lies 216 feet (66 metres) into the cave and the floor around the stump lies 51.6 feet (15.7 metres) below the elevation of the entrance at 82.3 feet (25 metres) above mean sea level.

The floor of the cave, between the entrance and the stump of the stalagmite, is very irregular with one steep gradient. The task of removing the stalagmite from the cave was immense. Once the stalagmite had been brought out of the cave it would then have had to be transported overland by horse and cart.

THE TRUNK OF THE STALAGMITE

Rear-Admiral Sir Alexander Milne, the son of Admiral Sir David Milne, served as commander-in-chief on the North American Station for four years in 1860-1864. As his father had done, he spent the winters in Bermuda, and during this time visited Admiral's Cave.

He noted that the stalagmite was again growing, with an accumulation of fresh calcareous matter that had been deposited on the trunk that had been sawn in 1819.

He noticed five drops of water falling on the trunk. Two of the drops fell at a rate of three or four drops in the minute the other three dropped much less frequently.

On the part of the trunk where the two first-mentioned drops were falling, two small knobs of calcareous matter had formed. On the part of the trunk that the other three drops were falling, the deposit consisted of only a thin crust.

One of the knobs measured in height above the fractured surface five-eighths of an inch, and had at its base an area of about three and three-quarter inches in diameter. The other knob measured in height four tenths of an inch and had at its base an area of about two and a quarter inches.

It was calculated that the cubic contents of the whole deposit did not exceed five cubic inches whereas the stalagmite on at the College had a cubic content of more than 76,000 cubic inches.

David Milne Home, the brother of Sir Alexander Milne, in a Notice to the Royal Society in its 1864-1865 Session, calculated that the Admiral's Stalagmite would have required the astounding and incredible period of more than 600,000 years for it to form. Having made this calculation the author immediately noted that there were several circumstances which show how little such a calculation can be relied on.

The calculation assumes that during the whole time of the formation of the stalagmite, the calcaveous matter had been deposited at exactly the same rate as during the prior half-century.

Both Sir Alexander Milne and his brother, David Milne Home, had visited the cave with their father Sir David Milne during his command.

THE MUSEUM OF THE UNIVERSITY OF EDINBURGH

In 1767 a second storey was added to a building in the old University of Edinburgh complex, dating from 1642, to house a museum. Dr. Robert Ramsey, physician, was appointed in the same year as Regius Keeper of the Museum and first Regius Professor of Natural History by the King. Dr. Ramsey died in 1778.

In 1779 Professor John Walker was appointed Regius Keeper. Professor Walker claimed that when he was appointed "there was nothing to keep". Under Professor Walker's able management, the collections of the museum grew.

Professor Robert Jameson, a personal friend of Admiral Sir David Milne, succeeded Professor Walker as Regius keeper of the Museum in 1812. He also received “a royal request that servants of the government and others in foreign parts should collect and send suitable objects to the University Museum”. In furtherance of this, he issued his own instructions to collectors in 1817. Through these official and other contracts he was notably successful in obtaining many valuable acquisitions for his museum.

During the fifty years of Robert Jameson’s professorship he re-created the National History Museum of the University as one of the finest of its type in Europe. It was noted that “next to the British Museum, that of the University of Edinburgh is by far the most extensive and complete in the United Kingdom”.

The natural history collections of the University of Edinburgh formed the foundation of the National collections in the Industrial Museum of Scotland that was formed in 1854.

The professor of National History in the University was to be the keeper of Natural History in the new Museum in the proposal considered by Senaus on 4th April 1854. This was a condition of the agreement that Professor Jameson had worked hard to achieve. Having achieved his ambition, Professor Jameson died fifteen days later.

THE ROYAL MUSEUM OF SCOTLAND

The Victorian’s eagerness for education, combined with the general interest in the Arts and Technology aroused by the Great Exhibition of 1851, led to the building of many museums and art galleries in Britain during the second half of the nineteenth century.

The Industrial Museum of Scotland, the forerunner of the present Museum, was founded in 1854, with the natural history collections of the University of Edinburgh forming the foundation

of the new national collection. Ten years later it was renamed The Museum of Science and Art. From the beginning it was a national museum, at first administered by the Department of Science and Art, and from 1901 by the Scottish Educational Department.

In 1904, it was renamed again and became the Royal Scottish Museum.

In 1985 the National Heritage (Scotland) Act brought seven museums, including the Royal Scottish Museum, under the auspices of the National Museums of Scotland, a new body Governed by a Board of Trustees. The museum was once more renamed and given its present title of The Royal Museum of Scotland.

THE ROYAL MUSEUM OF SCOTLAND BUILDING

The Chambers Street building in Edinburgh was designed to exhibit objects and artefacts of national importance. It is a listed building of high architectural merit and an exhibit in its own right.

One of the finest examples of Victorian architecture in the country, it was designed by Captain Francis Fowke R.E. (1823-1865), engineer and architect to the Department of Science and Art.

Fowke was an experienced exhibition designer and was familiar with the latest architectural Practices of the day, such as the use of cast-iron, plate glass and terracotta.

Captain Fowke's design for the Main Hall was clearly influenced by Sir Joseph Paxton's Crystal Palace. He used slender columns of iron, decorated capitals, rounded arches and curving staircases to create a unique sense of symmetry, grace and elegance.

The roof, made of wood and glass, soars 78 feet above the floor and extends 265 feet, the full length of the interior.

THE DISPLAYING OF THE STALAGMITE

The impressive dimensions and weight of the Admiral's Stalagmite presented logistical problems for The Royal Museum of Scotland, just as it had for the College of Edinburgh.

The logistics required the stalagmite to be displayed on the main floor of the Museum, two floors below the Minerals and Gems displays.

Even displaying the stalagmite on the main floor must have caused its own logistical problems as the specimen would have had to have been brought from the level of Chambers Streets, which is some distance below the main floor (see photograph of front elevation of the building in previous section).

The stalagmite was displayed in the north east portion of the Museum's main floor. The photograph below, taken in 1970, with Mr. William (Bill) Baird of the Department of Minerals and Gems, shows the stalagmite in its displayed position.

"Reproduction of the photograph denied
by The Royal Museum of Scotland"

Figure 4: Photograph of the Admiral's Cave Stalagmite

THE DEMISE OF THE STALAGMITE

In 1973 tragedy befell the much travelled stalagmite. The north-east wing of the Museum was being altered. This alteration involved the reconfiguration of the floors in the Northeast wing. A greater number of floors were sought to increase the amount of floor area to accommodate displays.

The demolition method used involved the collapsing of the floors down onto the floor below in succession. Unfortunately, the Admiral's Stalagmite had not been removed to a position of safety prior to the work beginning.

Faced with causing a delay in the construction work the Director of the Museum, Charles D. Waterston, made the fateful decision that the stalagmite should be destroyed rather than taking the relatively small amount of time to move it. This decision has been described on the basis of operational imperatives.

The Admirals' Stalagmite was then broken up and removed from the Museum. Sadly, this incredible artefact that had required so much effort to remove it from its underground home in Bermuda, and transport it to Scotland, is now lost forever.

CONCLUSION

The removal of any formation from a cave is the equivalent of passing a death sentence on the removed item. The story of the Admiral's Stalagmite clearly demonstrates that regardless of the honourable intent, and genuine scientific objective, the removal of a specimen from a cave inevitably results in its doom.

Clearly, the Admiral's Stalagmite was originally treated as a specimen worthy of being exhibited in the Royal Museum of Scotland. Following the passage of generations and different administrations, the decision was made later to wilfully destroy the Admiral's Stalagmite, despite the incredible work that had been required to remove it from the cave and transport it to Scotland.

Sadly, all that is now left of the Admiral's Stalagmite is the stump that is still in place in the cave. Small deposits of calcite are now evident and this leaves us all wondering if and when these deposits will ever reach the majestic proportions of the original Admiral's Stalagmite.

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