

# The Oak Island cofferdam

**Graham Harris adds recent findings of 18th century engineering on a 'treasure island' to his article published in Imperial College Engineer in 2002**

OAK ISLAND and its 'mystery', off Nova Scotia's coast, has intrigued generations since signs in 1795 indicated 'something' lay buried in the island's depths.

The underground workings on the island comprise two markedly dissimilar elements - a vertical shaft (The Money Pit), about 13 feet in diameter

and 200 feet deep, and a 500-foot-long tunnel (The Flood Tunnel) 2.5 feet wide by 4 feet high, connecting the shaft to the sea. At the seaward end of the tunnel there are filter beds which formed part of the inlet works, and evidence of an ancient cofferdam constructed to protect the inlet works during construction.

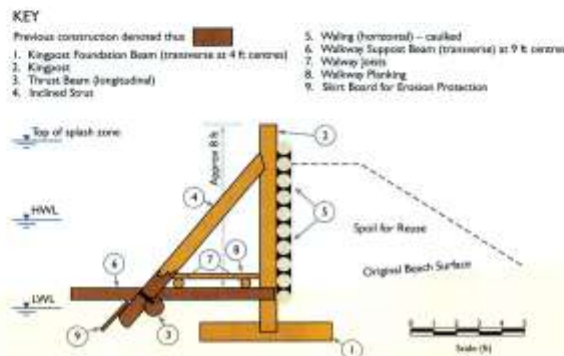
The excavation of the Money Pit has been linked to Sir William Phips (1651-95), who discovered the wreck of the *Concepción* from which he recovered 25 tons of silver. Circumstantial evidence links Phips to Oak Island as one of those conspiring to fund the revolution in England.

Treasure not used by the 1688 invasion force of William, Prince of Orange - gemstones, plate, Ming and other Chinese goods - was confined to the imagined security of the depths of Oak Island. The excavation of the Money Pit can be dated to 1688, but the treasure was to be lost because of a 'blow out' within the underlying gypsum/anhydrite bedrock.

A number of attempts appear to have been made to recover the treasure from 1690-97, but it appears to have lain neglected until the mid-18th century. The Flood Tunnel and ancillary features, including the cofferdam, can be dated to 1752-54. It shows the hallmarks of a military engineering project conducted in secret.

Excavations in 1967 revealed the

remains of a horizontal U-shaped log structure carrying remnants of inclined timbers marked with Roman numerals, and fixed in place with dowels. The excavations were open for a limited time, before being inundated by the sea, and did not extend to any great depth. Therefore, it is certain parts of the



foundations of the ancient cofferdam were never uncovered. Nevertheless, the constituent elements that were disclosed have been used to reconstruct how the original cofferdam may have looked, based upon the obvious resemblance to palisade walls in forts constructed by the British military in North America. The overall height of the cofferdam is open to conjecture.

The first stage in construction would have been to install the kingpost foundation beams (1) within the inter-tidal zone at as low a level as could be attained. These beams would have been massive baulks of timber, with pre-cut slots to accommodate the base of the kingposts (2). A longitudinal thrust beam (3) would have been placed outside the intended line of seaward side of the cofferdam. Such a beam would mobilize the passive resistance of the soil to resist the thrust of the soil stockpiled behind the timber wall.

The second construction stage would have been to position and fix the inclined struts (4) at the same time as the kingposts were raised. It

is likely the upper connections were made before raising took place. Trennels (wooden dowels) were used to fix the lower connections with the longitudinal thrust beam. It is possible they were used also for the upper connections on the kingposts. With the necessity of ensuring verticality of the kingposts, any adjustment could be made by installing the lower trennels after the kingposts had been positioned. Since the inclined struts are likely to have varied in length from one kingpost to another, they may have been marked by a chisel - crude Roman numerals would have sufficed.

The third stage in construction would have been to place the horizontal timbers (5), often referred to as walers, behind the kingposts, and caulk the gaps with oakum or coconut fibre. This was used in the construction of the filter drains inside the cofferdam. These wall timbers may have been lashed to the kingposts. Excavated spoil from drain excavation would have buttressed the timber wall.

To ensure the cofferdam wall was watertight, access to its outside at low tide was essential for recaulking. Cross members (6), joists (7) and walkway planking (8) were, therefore, necessary. Finally, to limit scour from tidal backwash, which might undermine the structure, a protective skirt (9) was provided in the form of a wide board securely fixed to the bottom section of the inclined struts, with its leading edge buried as deep as possible.

A number of cofferdam details are likely to remain unknown without further exploratory work. It has been concluded the project was carried out under the control of Captain John Bastide, chief engineer for North America (later Lieutenant-General). He played a prominent role in many important engineering works, including the construction of Halifax Citadel and Halifax Harbour defences. Engineer in charge of cofferdam construction was William Cowley. Labour was from the 47th Regiment of Foot under Colonel Peregrine Lascelles.

**For more detail, read G Harris & I MacPhee: *Oak Island and its Lost Treasure*, Formac, 2005.**

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