

Rosia Water Tanks, Gibraltar

History

Gibraltar Rosia Tanks were probably the first water tanks or cisterns built to store and supply water to the Royal Naval fleet on this scale. The Rosia Tanks were built 1799-1804 because Admiral St Vincent was staying ashore in Gibraltar in 1799 and realised that a reliable water supply and victualling store were needed there. There were no other British or allied naval bases in the Mediterranean and Tetuan and Ceuta could not be relied upon consistently for supplies.¹ The house in Rosia Bay where St Vincent stayed is still there (reputedly where Nelson's body was brought before taken home after the Battle of Trafalgar), later occupied by Victualling Yard officers. Paragraph 42 from Lionel Culatto's First Witness Statement prepared for the court case on 19 January 2006 and part of the Book of Evidence presented to Chief Minister The Right Hon. Peter Caruana and Governor H.E. Sir Francis Richards KBE CBE on 7 February 2006, states:

John Jervis, Lord St Vincent, had been appointed Admiral in Charge of the Mediterranean Fleet, and in 1799 whilst staying ashore through ill health in one of the houses in Rosia Parade, known then as "Rosia House" (part of that house is now St Vincent House – originally St Vincent House and the adjoining house was one larger house) recommended the re-siting of the victualling yard to Rosia, adjacent to his house. The site was particularly suitable as there was access to Rosia Bay and was protected from the seaward gunfire by the outcrop known as Parsons Lodge Battery. Furthermore it was out of range of the enemy guns at the North Front.

Some of the surviving British ships and captured prizes certainly took on water and stores from Rosia Bay after the battle before returning home. In P Goodwin's *Ships of Trafalgar, Royal Sovereign* and *Swiftsure* name Rosia Bay specifically after the battle: On Sunday 3 November *Royal Sovereign's* log states 'at 4.40 shortened Sail and came too with the best bower in 29 fathoms water in Rosio Bay'. After mooring it records 'found lying here Two Prizes and some of the Fleet'. On 4 November it states:

Sailed his Majesty's ship *Victory Prince Agamemnon* and *Niger* Carpenter Employ'd stopping holes out side arrived here his Majesty's ship *Etnea* at 6:25 sailed HM Ship *Etnea* sent away the Spanish Prisoners in Transports Boats emp^d Removing Cap^t Rotherams things to the *Bellerophon*.

Swiftsure's log states that she anchored in the Bay on 3 November.² *Prince's* log records that moored 'South the New Mole Head EbN 2 cables Length found Laying there HMS *Colossus*,

¹ Jonathan Coad, *The Royal Dockyards 1690-1850* (Aldershot, 1989, ISBN 0 85967 803 2), 322; Janet Macdonald, 'The Victualling Yard at Gibraltar and its rôle in feeding the Royal Navy in the Mediterranean during the Revolutionary and Napoleonic Wars', *Transactions of the Naval Dockyards Society Conference 2004* (Naval Dockyards Society, forthcoming, 2006).

² Peter Goodwin, *The Ships of Trafalgar: The British, French and Spanish Fleets, 21 October 1805* (Conway Maritime Press, London/Naval Institute Press, Annapolis. 2005, ISBN 1-59114-824-3), 20, 111. Original spelling is retained.

Belleisle, Bellerophon, Thunderer & Agamemnon, & a Spanish Line of Battle Ship [St Juan] & 2 French Prizes'.³ *Tonnant's* log records taking on water, supplies of fresh beef and vegetables; and lemons from victualling ships. *Tonnant* sent 'into the Store lime juice & Sugar'.⁴ Although it is unlikely that line of battleships could enter Rosia Bay, the association of these names is a strong indication that they were moored off Rosia Bay and using its facilities.

Prince Edward, Duke of Kent (1767-1820) served in Gibraltar as an army officer from 1790-1791 and was Governor of Gibraltar from 24 May 1802 to 23 January 1820, although Sir Thomas Trigge acted for Prince Edward from 2 May 1803 to 17 December 1804, and Lieutenant-Governor Henry Edward Fox from 1804 to 1806.

Local historian Dennis King cites a letter (in the Gibraltar Archives) dated 14 March 1804 from William Henry Otway, Commissioner of Gibraltar Yard, to acting Governor Sir Thomas Trigge: 'the late heavy rains having above half filled the Great Tank at Rosia: I think that His Majesty's Ships may take water from thence whenever Your Excellency has reason to suppose that there is a probability of the Wells at Ragged Staff becoming dry.' This proves that the tanks were in operation eighteen months before the Battle of Trafalgar. The dockyard officers also 'represent the necessity of having some Careful Person constantly to reside on the Spot for the care of the Works, and for whom some sort of habitation must be built.' This shows that Rosia Cottages had not yet been built for victualling personnel.

Rainwater was eventually collected from the Victualling Yard roof and stored in six underground tanks, cut into the cliffs next to the Yard to avoid having to build retaining walls. There is a pump house on the site. According to a reference in *Steering to Glory*, by Nicholas Blake, (Chatham, London, 2005) they held 5,000 tons of water. According to old MOD drawings seen by Robert Matto, Gibraltar architect, the dimensions of the tanks are as follows:

- Tank No. 1 60m long X 4.5m wide X 6.5m high
- Tank No. 2 60m long X 4.5m wide X 6.5m high
- Tank No. 3 60m long X 4.5m wide X 6.5m high
- Tank No. 4 55m long X 4.5m wide X 6.5m high
- Tank No. 5 58m long X 4.8m wide X 6.5m high
- Tank No. 6 58m long X 7.2m wide X 6.5m high

Local historian and architect William Serfaty describes their function:

The level of the bottom of the tanks is high enough to empty out to ships or lighters berthed at Rosia Harbour by a sophisticated gravity feed running under what is now the road to Camp Bay. The entire structure was built without access to Portland cement.⁵ The construction is excellently executed in brick and sand-lime mortar with a complicated finish to waterproof the tanks. The vaulted roofs of the tanks are a wonderful sight, and

³ Goodwin, *The Ships of Trafalgar*, 49.

⁴ Goodwin, *The Ships of Trafalgar*, 53.

⁵ This was not available in 1799.

also serve to provide a sloping catchment surface (which catches the light beautifully), directing water to the appropriate settlement tank, from which it is then directed to storage tanks.

It was important to keep the water pure, so the system was kept secure, and access to the catchment roof restricted to the employed personnel by the provision of a high wall which has kept the site out of the public eye all these years.

So well did the contractor, Juan Maria Boschetti, build the reservoir, that 150 years later in the 1950s the navy built Rosia Distillery in the space at sea level below and in front of the Rosia Cottages between the two eighteenth century defensive walls. Its site is now a slope, constructed about 2000 with rubble from demolished buildings at Cumberland Road and Tower Buildings, for vehicles to reach Rosia Harbour. It continued to supply the resultant stored water from the tanks to lighters which would pull alongside at Rosia Harbour to load up with fresh water for naval vessels from the reservoir.

A description of a same water collection principle was observed in Antigua during the Seven Years' War (1756-1763):

Columbus, who first discovered this island, on finding no water, soon abandoned it again, and gave it the name of Anti-Augo, which signifies no water, or an enemy to water; nevertheless it is of great consequence now to England. The planters and others are obliged to catch rain water in tanks or cisterns, which are made as follows, viz, they dig a square trench like a cellar, which they pave at the bottom, wall at the sides, and arch over at the top; then enclose a compass round it with a wall, and pave the ground so taken in (above the tank) with a descent, inclining to a gullyhole, where it runs down, and whence it may be drawn out again with a bucket. These will hold and preserve a great deal of water. They have them in plenty in several parts: there is one of large dimension on Monk's hill, for the garrison, and another at English Harbour, for the navy.⁶

Malcolm Tucker, Industrial Archaeology Society and Naval Dockyards Society, considers that the cement could be pozzolanic cement. This is a hydraulic cement made from volcanic ash (originally from Pozzuoli near Naples), containing silica, alumina and lime, or slag from a blast furnace, mixed with powdered hydrated lime. It had been used since Roman times. John Smeaton used it from 1770s at the Whitbread Brewery in London and at the Eddystone Lighthouse. Lionel Culatto adds:

Indeed General Sir Charles W Pasley FRS in his 'Observations on Limes' (1838) refers to Colonel (later Lieutenant General) Fanshawe's 'Memoranda and Remarks on Hydraulic Mortars' in which is described the different sorts used in new works at Water Port, Gibraltar executed under the direction of the Commanding Royal Engineers there in the years 1790 to 1791 viz Coal Ash Mortar, Dutch Tamas Mortar, Puzzolana Mortar and lastly Puzzolana Mortar for lining cisterns and coating the ridges of Casemates. This last consisted of slaked lime 16 measures, Puzzolana 8, sand 5¼, brickdust, 5¼, beaten glass 4 and Smith's danders 4, resulting in a proportion of lime to the other ingredients of 1 to 1 2/3 nearly. It is possible that a similar mixture was used at the Rosia Tanks although a natural hydraulic cement made by burning a clayey limestone could have been used.

⁶ N A M Rodger ed, *The narrative of William Spavens a Chatham Pensioner by himself* (Chatham, London, 1998), 114.

John Smeaton had published the results of his experiments in 1791 in ‘a Narrative of the building...of the Eddystone Lighthouse’ and there showed that the limes which developed a firm set for ‘water building’ were those made from limestones or chalks which contained a suitable proportion of clay. This was an important publication in the eventual development of Portland cement. In 1796 the Reverend James Parker patented his cement which was sold as ‘Roman Cement’. This was made by calcining Septaria which are concretions of limestone and clay and occurring in the clay beds of certain rivers.

If a Puzzolana cement or Parker's cement or even better a similar product made locally from clayey limestone was used on the Rosia Tanks it would be important information in the history of building construction.

The tanks were in use by the MoD until April 2004 when they were handed over to the Gibraltar Government. According to Steven Harrison who lives in Rosia Bay:

They were used to store all the desalinated water from Glen Rocky Distillery. From the Rosia tanks the water was transferred to the East Side reservoirs where it was sampled, treated etc to meet EU water directives. The MOD fitted a by-pass line to the East Side. The main is still on the tank and will have to be diverted. The Glen Rocky Distillery is a desalination plant owned by the MoD but operated by a private contractor. It is still in operation, in fact the MOD invested in a new plant quite recently. It is now their only source of drinking water. At its peak the MoD boasted four desalination plants: Med Cave, NATO, Rosia and Glen Rocky, and of course the water catchment on the East Side. The water catchments on the East Side are now decommissioned, but the three reservoirs within the rock are still being used. Even the waste heat from the generating station engines was used to make fresh water.

In addition to this capacity there was the facility to bring water in by ship, these would pump into Line Wall Tank which is situated next to the Admiralty Tunnel entrance. The tank is still there but not in use.

I checked with the water section and they confirmed that the last time Rosia Tanks were used was August 2004. The tanks were actually transferred on September 2004, so the transfer document shows. This means that the Rosia Tanks have been in continuous use for over 200 years.

The tanks were still in good condition when historian Lionel Culatto saw them in January 2006, during the access visit allowed by the Judge during the recent court case brought by the Gibraltar Heritage Trust. Lionel Culatto's first Witness Statement summed up the reasons why the whole of the Victualling Yard, including the Tanks, should be listed. Paragraph 50:

I mentioned earlier that the whole Victualling Yard is worthy to be listed and I would repeat that opinion on the following grounds:

- (a) the buildings were constructed before 1840 – buildings before that date are normally listed just for their antiquity;
- (b) the buildings are exceptional in themselves being a series of brick walls covering an enormous area. Further research may show innovative use of materials especially hydraulic lime;
- (c) the type of building is rare in itself, both in Gibraltar and elsewhere;
- (d) as a victualling yard it is a unique surviving example;

- (e) subject to further study it could be an important example of a particular architect, whether [Samuel] Bentham, Boschetti or someone else;
- (f) the buildings as a whole make an important contribution to the townscape;
- (g) there are important cultural and/or historical connections with the growth of British naval power from the 1800s onwards;
- (h) the buildings are an important part of Gibraltar's naval heritage which stretches back many centuries.

In Lionel Culatto's second Witness Statement, dated 24th January 2006, he described visiting the tanks on Monday 23rd January:

Para 5. There are 6 vaulted tanks, each running north/south with number 6 to the east and number 1 to the west nearest the bay. Each tank has an entrance from an open area to the north. The entrances are just below the vaults of each tank so there is a fixed metal ladder to reach down to the floor of each chamber.

Para 7. I went down first, followed by Mr Serfaty. We had two very powerful torches supplied by a local resident. My first impression was surprise and awe at the enormity of the chambers. It seemed 30 or 40 feet wide and some 200 feet long. There was only a few inches of water in part of the tank, the rest was dry. The floor was paved in a herringbone fashion with 12 inch x 6 inch flat bricks traditional in Gibraltar. The walls and vault were rendered. Everything was in perfect condition. It was an exhilarating experience.

Para 8. We then had a look at tank number 4 which is slightly smaller. We did not go down. The vault was of exposed brick and the walls and floor were lined in a waterproof material installed some years ago.

Para 9. A building above the tanks, which I believe was a pump house but the building was locked and Haymills [the contractors] did not have the key so we did not inspect it. To the north there is a large building of a later date (circa 1902) which we were told was connected to the brick lined tunnel referred to in the next paragraph.

Para 10. Outside we inspected an arched opening to the east of the tanks and just above the slope leading to Rosia Bay. This led to a tunnel up to the tanks and was some 30 inches x 4 feet and was built of stone and seemed to be part of the original construction. Another tunnel clearly of later date and brick lined was sited further north.

Para 11. This viewing has reinforced my opinion about the value of these buildings. Anyone who goes down in to the tanks cannot fail to be impressed. It would be an enormous loss if these buildings were to be destroyed or even partly destroyed. Indeed much of their visual value depends on the size of the chambers. If these chambers were truncated they would not be so impressive. I have been told that there is some talk about these buildings having deteriorated and being beyond repair. There is no truth in such a statement. In fact although the Government has apparently done nothing to maintain these buildings since they were handed over by the Ministry of Defence they are still in remarkably good condition.

Para 12. These tanks are of course part of the whole Victualling Yard complex and were built together on one site so that both water and victuals were supplied from one site. It was all designed as one complex and should be listed under the Gibraltar Heritage Trust Ordinance as one site. There is little doubt in my mind that the existence of these buildings would further justify the listing of Gibraltar as a World Heritage Site.

Campaign

The Naval Dockyards Society was asked for help in January 2006. In October 2005, the same month that Gibraltar was hosting international celebrations for Trafalgar 200, the Chief Minister, Peter Caruana announced the water tanks would be demolished to build an eight storey block of 200 affordable flats. This was one of many historic sites handed over to the Gibraltarian Government in April 2004, listed in *Dockyards*, 9, 1 (August 2004), 8. Within twenty-one days 3,000 signatures, 10% of the Gibraltarian population of 30,000, were collected to object.

The Chief Minister proceeded with demolition regardless, with no Environmental Impact Assessment or archaeological/architectural survey. Gibraltar Heritage Trust took the case to Judicial Review in January but had to withdraw because it did not have funds to pay legal damages. The South District Association has carried on the campaign, holding public meetings, vigils and press conferences. They invited me to visit in February and I was taken all round the peninsula to see many ex-MOD historic sites where luxury housing estates have been built over the past few years, and many sites where affordable housing could be built. I spoke on local radio and TV and at the public meeting on 7 February, urging listing and preservation of the Tanks, Victualling Storehouse and Rosia Bay complex, which includes Parson's Battery, the Grand Arsenal, a rail tunnel linking the base to the Dockyard, a hoist to raise injured seamen to the Royal Naval Hospital and a cold meat store cut into the cliffs. I argued that the site would be valuable to the Gibraltarian economy as a maritime heritage site, improving Gibraltar's case for World Heritage status, provoking the Chief Minister to criticise my coming to Gibraltar to tell them to protect their victualling heritage when Britain's own victualling sites had been destroyed. He had to be corrected: Royal William and Royal Clarence Victualling Yards still exist and are being developed for residential and commercial use. The local press covered the case exhaustively.

After my return the Naval Dockyards Society worked with the Society for Nautical Research, SAVE Britain's Heritage, ICOMOS-UK, Europa Nostra, MEPs and the South District Association to save the Rosia Tanks. The British Government maintained that this was a 'defined domestic issue' and would not intervene. Sadly, the Tanks were demolished in August 2006.

Agencies and sources

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Gibraltar South District Association <https://gsda.wordpress.com/>

Save the Rosia Tanks <http://www.gibconnect.com/~sda/>

<http://www.gibconnect.com/~sda/appeal.htm> to see a heritage-sensitive illustration of a possible use.



Save the Rosia Tanks Demonstration February 2006. Ann Coats