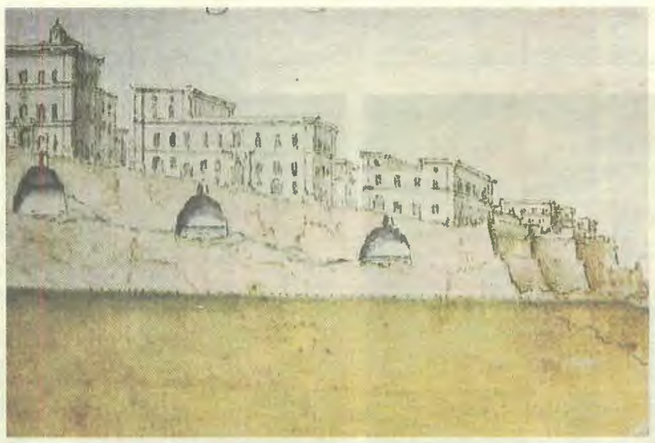
A view of St George's Square, Valletta, in the mid-17th century, including the 1615 fountain.



Romano Carapecchia's 1723 drawing of three of Valletta's water cisterns. COURTESY: NATIONAL LIBRARY OF MALTA

The du Cros painting of the Neptune Fountain near Marina Gate (now replaced by Victoria Gate), Valletta.

The Wignacourt archway at Fleur-de-Lys and part of the aqueduct in the background.

It happened this month

Construction and inauguration of Wignacourt's aqueduct 1610-1615

JOSEPH F. GRIMA

A section of the aqueduct at Mriehel.

Cassarino's painting of Grand Master Alof de Wignacourt (1601-1622) who was determined to solve Valletta's 'water problem'. COURTESY: WIGNACOURT MUSEUM, RABAT

Grand Master Martino Garzes (1596-1601) was unsuccessful in his attempt to solve Valletta's 'water problem'.

On April 21, 1615, Grand Master Alof de Wignacourt inaugurated the first freshwater supply system to Valletta. Hitherto, the supply of water to Malta's capital city had been a big problem because only negligible subterranean freshwater reserves were known to exist on the city site. In fact, fresh water for drinking purposes was obtained from the Marsa spring of Ghajn Filep, which meant a boat journey of about five kilometres. In the event of a siege, even this spring would be denied to the Valletta inhabitants.

This problem was known to the Knights when they built Valletta but strategic considerations had more or less forced them to develop the Mount Sceberras peninsula. In fact, by law, every house in Valletta was bound to have a well which was to be well-maintained and clean but, up till the 1590s, the water problem had become so acute that the Order was literally forced to try to solve it.

The first real attempt to obtain regular water supplies to Valletta was during the magistracy of Grand Master Martino Garzes (1595-1601). In 1596, a Jesuit engineer, Padre Giacomo (Cariddi from Messina?), was called in to try and provide a solution. Initially, about 20,000 scudi were made available by three benefactors – Grand Master Garzes, Fra Centorio Cagnolo and Fra Bernardino Scaglia – but no tangible solution was found and so everything was left in abeyance.

Alof de Wignacourt (1601-22), who succeeded Garzes to the magistracy of the Order, seems to have decided that Valletta's water problem would be solved by hook or by crook. In 1610, he invited another Jesuit, Natale Tomasucci from Messina, to find a solution. At the outset, it was clear that the expenditure involved would be much higher that had been envisaged 14 years earlier.

However, Wignacourt declared that he would meet most of the expenditure from his own pocket and that no taxes would be imposed to finance the project. The Order's Council thanked him and accepted his generous proposal but also ordered that profits from the Order's bakeries were to be directed to the same purpose.

Water reserves were quite plentiful in the high localities of the Dingli/Rabat area. What the project really entailed was the channelling of this water through an underground pipeline. Water was collected from Djar Ħandul, Ghajn Qajjied and Ghajn Tewżien into galleries and conducted to Ġnien is-Sultan from where it was to start its long journey to Valletta.

Work progressed fairly rapidly under Tomasucci's direction and no real problems of note were encountered till the village of Attard was reached. From here to Santa Venera there was a problem. Hitherto, the route had sloped gently downwards but, at Attard, the land dipped abruptly. There were large depressions between Attard and Mriehel and from Mriehel to Santa Venera.

Tomasucci gave up and returned to Sicily. However, Wignacourt was determined not to abandon the half-completed scheme and, in 1612, he called in another engineer: Bontadino de Bontadini, from Bologna, Italy. He was to be helped by three foremen, *capi mastri*: two Sicilians – *Mastro* Andrea from Trapani and *Mastro* Giuseppe from Palermo – and the Maltese *Mastro* Giovanni Attard, who had all worked on the project with Tomasucci. Attard (c.1580-c.1630), an employee of the Order of St John, lies buried in the former parish church of Lija.

So far, the water 'pipes' had been placed underground and the water pressure on the sides of the water canals was absorbed by the debris encasing the canals. But this system could not be continued. The main difficulty was that now there was nothing to help resist the water pressure. So Bontadini brought *pozzolana* from Italy to strengthen the stone canals' sides, and to plaster the joints with it to prevent water seepage. *Pozzolana*, so-called after Pozzuoli near Naples, was a kind of clay which, when hardened, was much stronger than ordinary clay and was therefore ideal for Bontadini's purpose.

The water canals were going to be placed on blocks or walls of stone but Giovanni Attard advised the building of an aqueduct on arches which would be high or low according to the land levels. In this way, the gradual incline followed so far from Rabat would be continued.

"About 600 men had worked on the project but the Grand Master, true to his word, forked out almost all the expenses from his own personal coffers"

The aqueduct was erected from Attard village to Santa Venera along the Rabat road. At a particular point, the aqueduct was to cross the road, so a large archway was built for this purpose, with one large span and two small spans. The archway was decorated with *fleur-de-lys*, part of the Wignacourt family's coat-of-arms, which have given this locality its name, even though the original archway was demolished years ago during World War II.

However, enemy action was not the culprit. It was partly damaged by a large military crane that attempted to pass underneath it. It was subsequently demolished, but all its parts were duly enumerated so that someday it would be built on another site. This rebuilding was never taken in hand but, on its original site, a replica was erected in the middle of a traffic roundabout a couple of years ago.

The original archway included a commemorative marble tablet with an inscription in Latin whose translation reads: "So far Valletta was dead. Now that the spirit of water revives her, as once the first spirit floated on the waters; now that water has been led to her, the spirit returned. 1615."

From Santa Venera onwards, the water canals wind their way underground. A mall tower marks the junction of the aqueduct with the underground canal at Santa Venera, while, in a street behind the St Cajetan parish church at Ħamrun, there is still extant a small circular building known as the Atocia Turret. In Floriana, in front of Sarria Church, a fine buttressed tower bearing Wignacourt's coat of arms marked the arrival of freshwater at that point.

It was on April 21, 1615, that freshwater first flowed into Valletta. The project had taken five years to complete but had succeeded in ensuring a reliable and plentiful supply of water carried over a distance of about 16 kilometres. Feasting and elation greeted the new water supply, which was first made available at a specially-erected three-tiered fountain, surmounted by Wignacourt's *fleur-de-lys*, in the middle of St George's Square, in front of the magisterial palace. This fountain, minus its *fleur-de-lys*, is now located at St Philip Gardens in Floriana.

About 600 men had worked on the project but the Grand Master, true to his word, forked out almost all the expenses from his own personal coffers. The project had cost over 155,000 scudi, of which only 40,000 were contributions by the Order's bakeries.

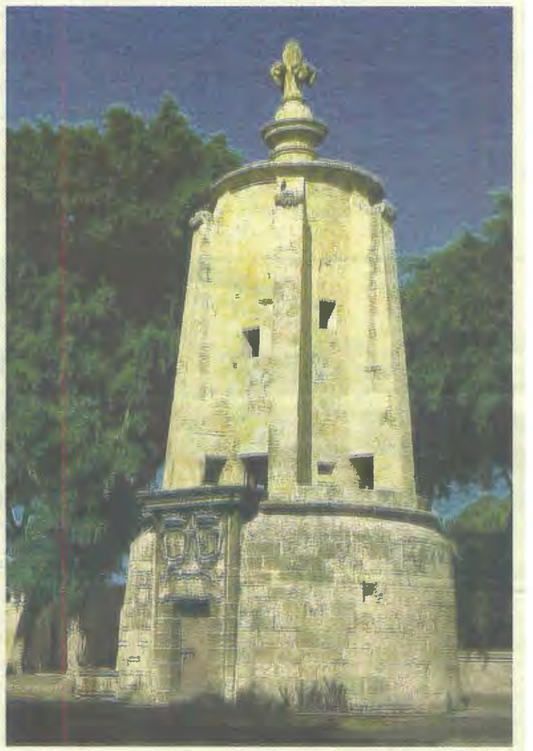
A reminder of when piped water was introduced to Valletta is the Wignacourt fountain in Ordnance Street that was restored by Din l-Art Ħelwa over 30 years ago. There were also other fountains, the most beautiful being perhaps the Marina Fountain – vividly depicted by Du Cros (1748-1810) in a painting in the Maltese National Collection – which was surmounted by a statue of Neptune, now in the Presidential Palace courtyard.

The new pipeline also made possible the building of water tanks and reservoirs. In 1723, architect Romano Carapecchia reported that, in the Valletta/Floriana area, there were 40 tanks and 13 reservoirs, most of which were protected by the Valletta fortifications. Twenty-one of the tanks were public, the most important located thus: near Fort St Elmo; at the Manderaggio; in modern Republic Street near Palazzo Ferreria; opposite St John's Co-Cathedral; opposite the modern law courts; in St Paul Street near the University buildings; at the top of Old Mint Street; and in Mediterranean Street near the Lower Barrakka. Some of these tanks were also connected to private buildings.

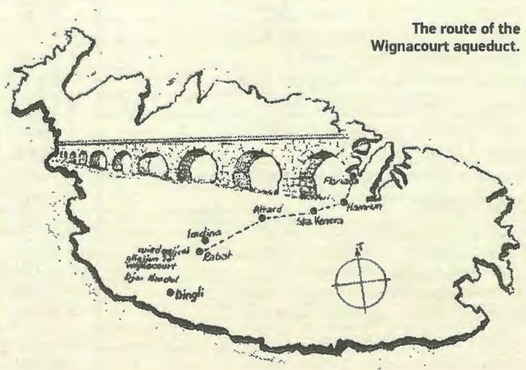
However, in spite of the aqueduct, Valletta remained vulnerable in times of siege as it was very easy for the enemy to cut off the water supplies as the French found out in 1798-1800 when they were besieged by the Maltese insurgents.

Dr Joseph F. Grima, a retired casual history lecturer and Assistant Director of Education, includes among his publications Żmien il-Kavallieri f'Malta 1530-1798 and The Fleet of the Knights of Malta: Its Organisation during the 18th Century.

The Atocia Turret in Ħamrun.



The fine buttressed tower at Floriana, facing Sarria church.



The route of the Wignacourt aqueduct.