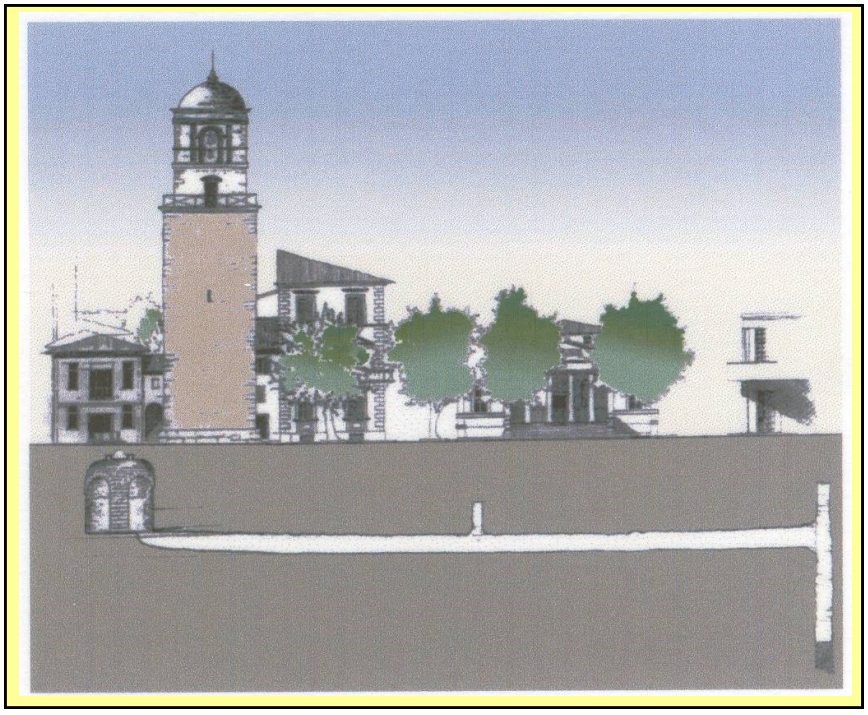
From "Porsenna's labyrinth" to the Tower of St. Secondiano

A historical-archaeological route through places and Monuments of Etruscan, Roman and medieval Chiusi



Text by: Onedo Meacci-President of the Lay Body of the Cattedrale. 1996

Piazza del Duomo is the monumental heart of present-day Chiusi. Grouped around it; within a range of a few metres, are the Cathedral of St. Secondiano (6th century) with its adjoining museum; the Episcopal Mansion (l5th century), with tombstones embedded in its portico; the bell-tower (12th century) from which an internal staircase leads to the Roman cistern (1st century B.C.), and the National Archaeological Museum. Late 19th-century scholars believed the Roman forum to be located in this area, but recent discoveries favour the more central Piazza XX Settembre. Nevertheless, important buildings were located in this area, as demonstrated by the inscriptions found here, next to private houses of great prestige, the remains of which were brought to light during the excavations under the apse of the cathedral.

Fig. 2 shows a diagram of a small section of the tunnels known to be under the city. The only walk able passage is about one hundred metres long, and connects the city walls to the Roman cistern. The Etruscans had created this series of tunnels to collect rainwater, which, filtering through the layered sandstones and sediments of the hillside - as will clearly be seen underground - was channelled into wells and then drawn for domestic use. One of these wells was cleared of the soil it collected during the centuries and can be seen here.

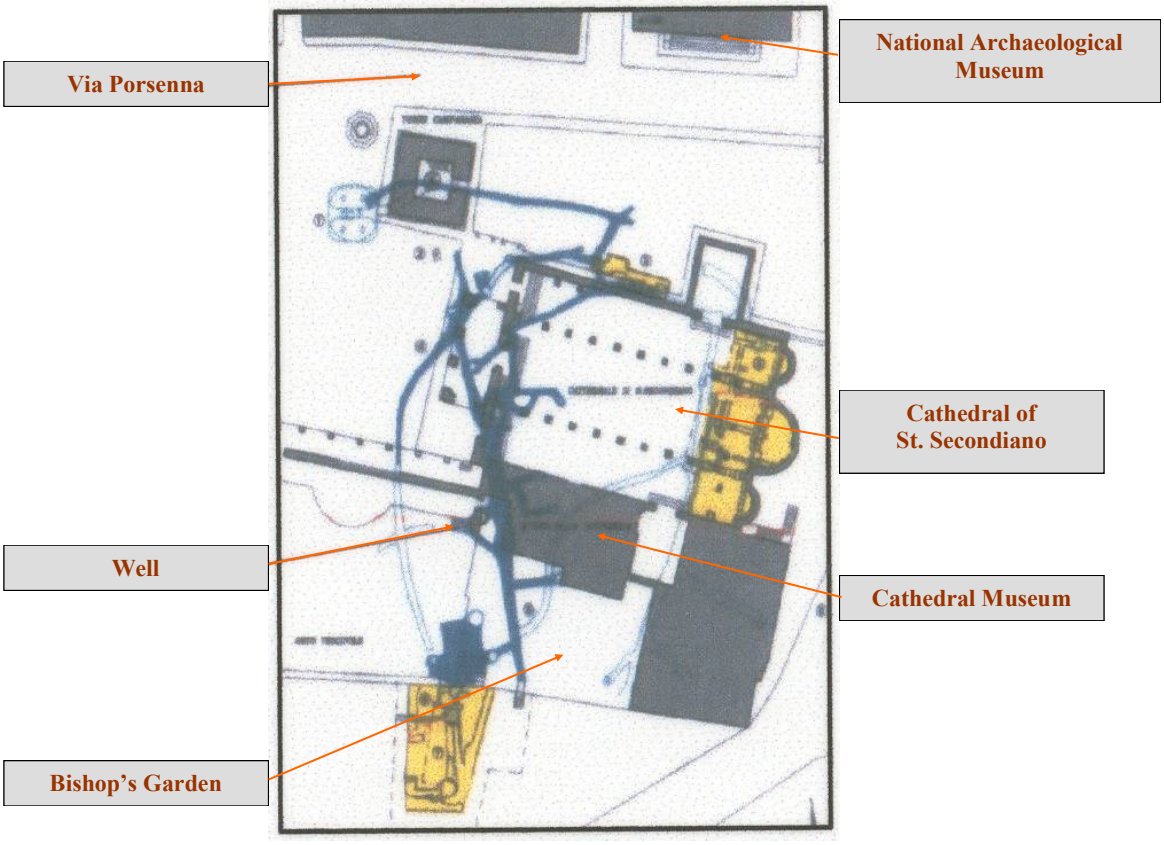


Fig.2 - Plan of the Church - Walkable section of the Labyrint (Light Blue)

Tradition has connected, from time immemorial, this complex tunnel system to the name of Porsenna, the Etruscan king of the 5th century B.C.. His legendary tomb was described by the Roman historian Pliny the Elder, who was born in Como in 23 B.C., and died in the volcanic eruption of Vesuvius in 79 A.D. " The king was buried under the city of Clusium in a square monument with a base of 300 feet, 150 feet high (94x47m) that contained an inextricable Labyrinth. It had pyramids , at each corner that were 47 metres high, and a covering of wide bronze sheets from which hung bell-shaped wind chimes that could be heard from afar, like those at Dodona (an ancient Greek city in Epirus)".

In his work "Naturalis Historia", Pliny mentions the most famous labyrinths of antiquity: in Egypt, in Crete, in Lemnos and the Italian one, that is, Porsenna's. In Pliny's day there were traces left of the Lemnos and the Egyptian labyrinths, but the Cretan and the Italian had been lost.

Fig. 3 shows a hypothetical reconstruction of the Porsenna Mausoleum, based on Pliny the Elder's information.

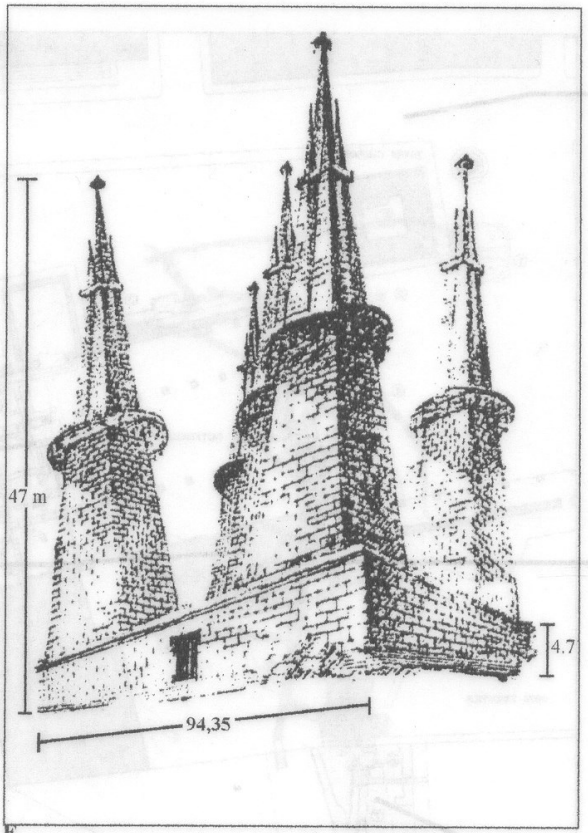


Fig.3 - Hypothetical reconstruction of Porsenna's tomb.

The landscape

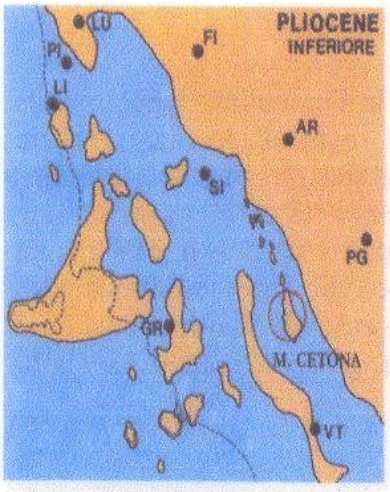


Fig. 4. Tuscany in the Pleistocene

In the Pleistocene Era (5 to 3 million years ago), most of Tuscany was covered by a vast sea (fig.4). The Apennines rose above it and all hills higher than 250 metres were islands that formed an extensive archipelago.

Monte Cetona (the cross an its peak at 1148 m. can be seen from the gardens of the museum) was such an island, separated from the Apennines by the depression that is today's Val di Chiana. Monte Amiata (1738 m. high and visible behind Mt. Cetona) was formed by a series of volcanic eruptions between 290,000 and 180,000 years ago. The seawaters gradually withdrew and the subsequent geological and climactic changes shaped today's environment.

Chiusi's hill consists of more or less compacted yellow sandstones and sandy clays of marine origin, layered with agglomerated gravels and pebbles that were rounded and smoothed by the action of water. These are clastic sedimentary rocks locally called puddinga, or tischio.

The upper layers of sandstone absorb more rain water than the lower, more compacted ones which contain more clay and favour the formation of artesian pockets. The conglomerate absorbs and preserves water like a gigantic sponge. The Etruscans, well aware of these characteristics, carved out what we today call Porsenna's labyrinth, a sophisticated and ingenious system for the collection, filtering and conservation of water essential to the ancient city of "CLEVSIN".

Fig. 5 - Stratigraphy of the labyrinth (O.Meacci)

The city walls.

The archaeological excavations performed by the Tuscany Superintendent for Archaeology during the late 1980's exposed considerable stretches of city walls built in three different periods. The Etruscan walls dating to the 4th century B.C. were built with squared blocks with no cement. The same "dry wall" construction was used by the Romans in the 1st century B.C.. The front section is 10 metres thick. Finally, the uppermost section, under the glass walkway, dates to the Longobard period, 7th century A.D.

The defensive walls are a few feet from the complex tunnel system under the hill of Chiusi.

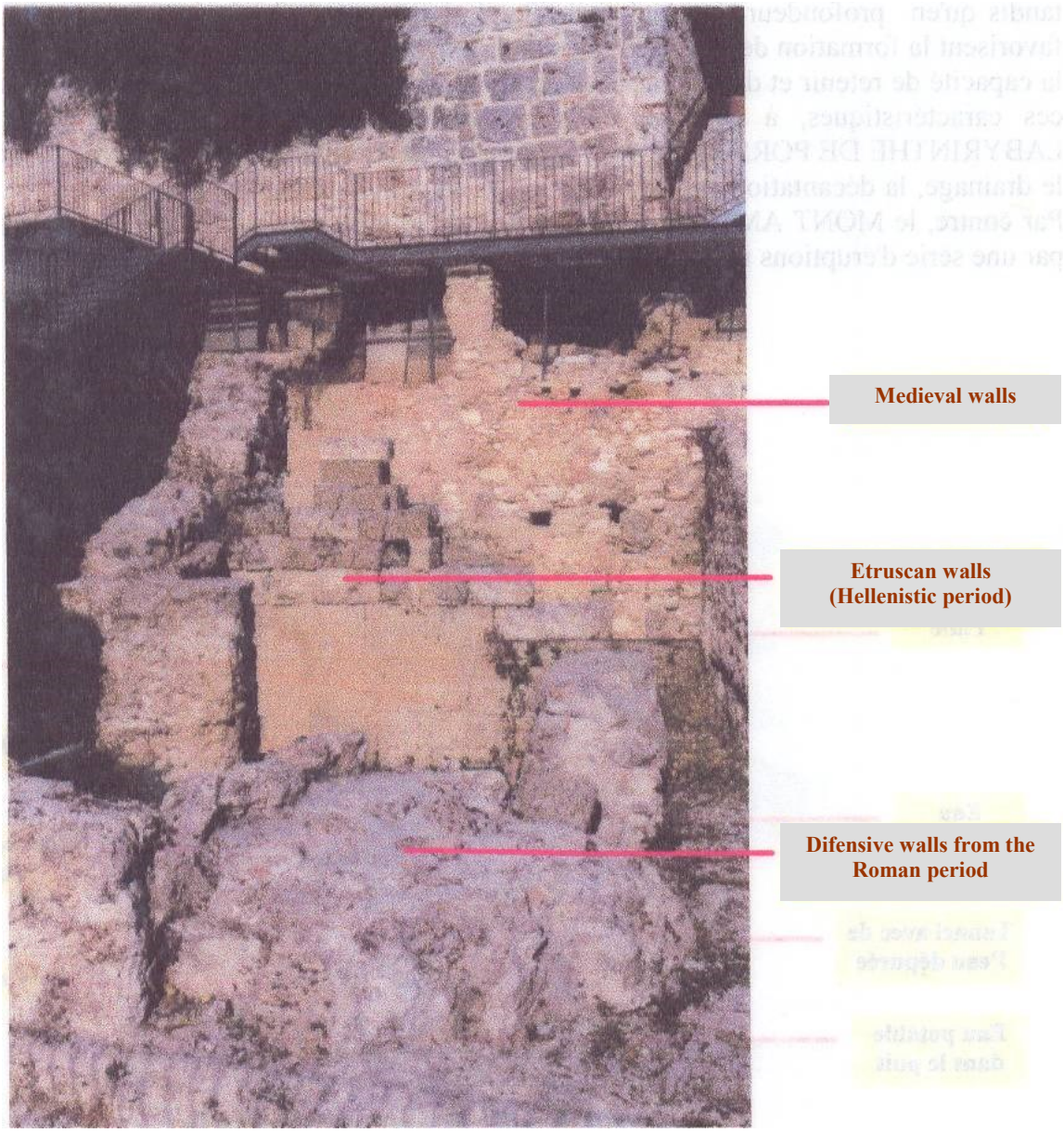


Fig. 6 - The city walls

The tunnels.

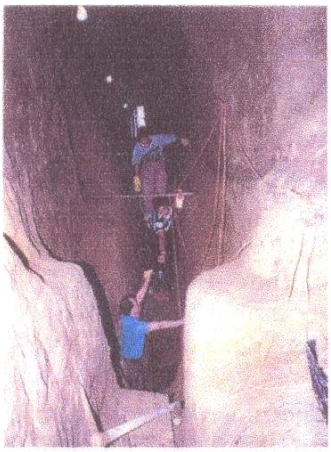


Fig. 7. **Volunteers at work digging out the tunnels.**

The tunnels, dug out of sandstone, were used for drainage and as water-reservoirs. Rainwater filtered through the layers of sandstone and conglomerate, was collected in big subterranean basins and then drawn to the surface by wells. This particularly ingenious and extensive system testifies to the proverbial skill of the Etruscans to guarantee a steady water supply to their towns. The underground passages of Perugia, Todi and Orvieto are similar in purpose and structure. At Chiusi the network is on different levels, with many wells for access and ventilation.

Underground you will see three tunnels that were not excavated. On the left side of the main tunnel, two small and one large passages are almost filled with darker, looser soil: they show the amount of silting deposited over the centuries.

Objects.

Objects found inside the tunnels during the excavation show that the water-collection system was used in Etruscan times, and that by the end of the 1st century A.D., at least the stretch brought to light in the Bishop's garden had lost its original function of a "water-mine".

The passages were in fact used as a rubbish dump for the town above and were also interrupted here and there by masonry cisterns, which collected rain-water from the grooves of buildings. Some of the objects found in the debris collected over the centuries are well-preserved, others have been restored. The photo below shows two Roman lamps and an Aretina-ware ceramic cup.

Fig.8

Roman lamp

Roman oil lamp

Aretina-ware ceramic cup

The Roman cistern.

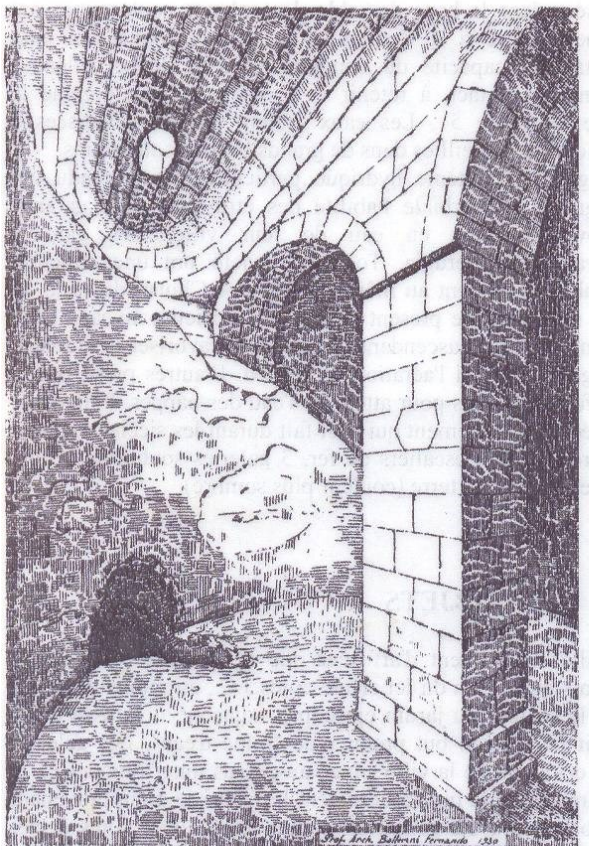


Abb.9 - römische Zisterne

The excavations under Chiusi, started in the 1920's by the archaeologist from Trieste, Doro Levi, were resumed by the volunteer group "Archaeologists of Chiusi" with the permission of the Sopraintendenza Archeologica della Toscana. Between 1989 and 1995, a stretch of over 120 metres was cleared and made accessible to the public. It runs from the entrance at the city-wall to a big circular cistern with a central pillar and barrel vaults made of travertine blocks. The cistern, built in the 2nd or l st century B.C., may have been the water-supply of the *Collegium Centonariorum,* a corporation of firemen, whose seat may have been in an adjoining building, as some inscriptions seem to indicate.

The peculiar construction of this cistern is noteworthy. The central pillar, built of travertine blocks of identical size and shape, placed without mortar, supports two round arches of fitted trapezoid blocks. These sustain two dry-wall barrel vaults of precisely cut and fitted travertine blocks. Each vault has two circular openings 50 cm wide. The water, certainly not drinkable, was rainwater from roof-tops fed into the cistern by terracotta pipes, some of which can be seen on the farther wall. To the right of the door, up high. are the remains of the hydraulic cement used to waterproof the walls of the cistern.

The cistern's volume is 175 cubic metres.

Diameter:	6,28 metres = 20 Roman feet
Height:	6,28 metres = 20 Roman feet
Radius:	3,14 metres = 10 Roman feet

The Bell Tower

A staircase leads from the cistern to the bell-tower, originally built for defensive purposes at the beginning of the 12th century. Here too, the walls are of squared-off travertine blocks with no mortar. The original door to the tower was on an upper level, where there is a window today, and was reached by a movable ladder. At that level can be seen the protruding stones that held up the entrance-floor beams.

In 1585, Bishop Masseo Bardi acquired the tower and had the brick belfry added. From the terrace at the top, 27 metres above the square, the view extends from Monte Cetona and Monte Amiata, to distant Orvieto and Città della Pieve, to Lago Trasimeno and the lakes of Chiusi and Montepulciano, to Cortona and all the nearby villages.

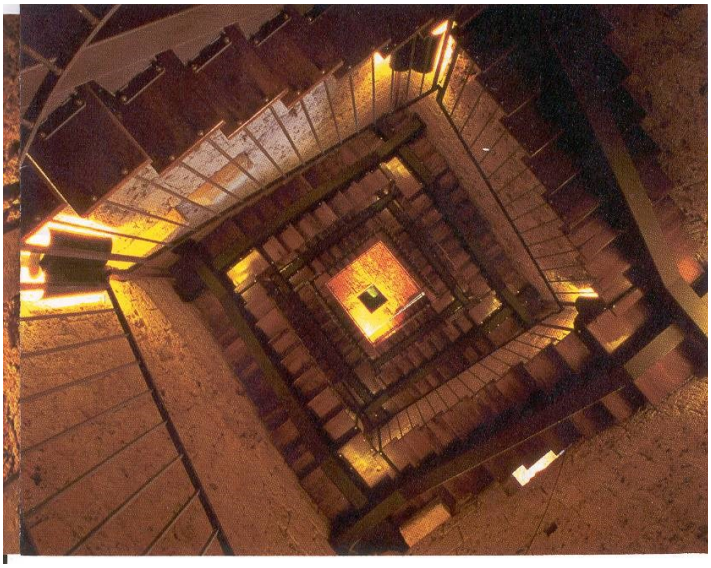


Fig.10 - Staircase of the Belltower

The staircase, inaugurated on June 24, 1995, has 142 easy steps.

PLEASE NOTE:

Two doors lead to the tower terrace: please keep them closed at all times, to keep out the pigeons that cause a lot of damage.

The ground-floor door is the exit to the public gardens: please close it when you leave.

The Director of the Cathedral Museum thanks you for your interest and bids you *BUON GIORNO!*

AFTER USE, PLEASE RETURN THIS TO THE MUSEUM DESK

Thank you

Text by: Onedo Meacci - President of the Lay Body of the Cathedral. 1996.

On the cover: the tunnels under the Bishop's garden, excavated by the Archaeological of the City of Chiusi. 1992

Translation by Daniela Ford.

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