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edited by
Maddalena Bassani, Maria Bergamo,
and Silvia González Soutelo

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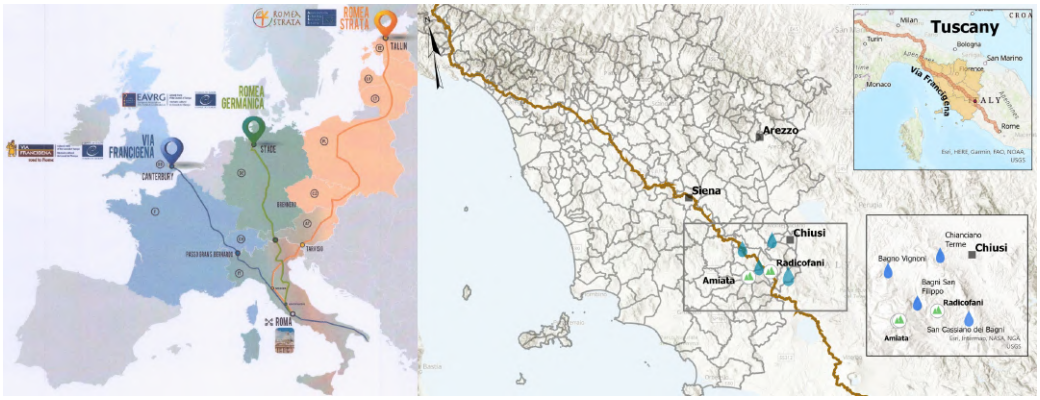
Thermal heritage on the Via Francigena in Tuscany

A diachronical overview from the European rurAllure project

Silvia González Soutelo, Miguel Gomez-Heras, Laura García Juan

The Tuscany region (Italy) is of great interest, beyond any doubt, thanks to its historical, archaeological and natural heritage. This region is known worldwide and highly valued for its unique Medieval cities and its countryside. One area of particular interest within the Tuscany region is the Val d'Orcia, which was declared World Heritage by Unesco in 2004 for its history and landscape. Despite its recognition, this rural area has a poor public communication system, and its sites are only easily accessible by private transport, and numerous small towns that are very rich in terms of heritage are not yet very well-known. Consequently, this region was considered particularly interesting to be included as a specific pilot case within the European rurAllure project (Horizon 2020 n.101004887) which seeks general tools that help and encourage the discovery of those rural areas close to pilgrimage routes which are already consolidated or in progress. Additionally, our pilot case is focused on thermalism and provides a new subject area which should be considered as a potential aspect to be discovered on the Val d'Orcia (Tuscany) in relation with the historical Via Francigena Route and its thermal heritage (material, immaterial and natural) which is mainly located in rural areas [Fig. 1]. In this sense, in the context of the work package focused on the Thermal sector (WP5), an in-depth analysis of this area was considered after assessing different options within the scope of the Italian territory, considering three pilgrimage routes to the city of Rome: Via Francigena, Via Romea Germanica and Via Romea Strata.

Specifically, the Universidad Autónoma de Madrid (UAM) team, comprised of several specialists in thermalism, archaeology, geology, geography and museology, in collaboration with the European Association of the Via Francigena ways (EAVF), also member of this European project, carried out several tasks in this route. These tasks were focused on analysing and rediscovering different sections of the Via Francigena to recognize regions of special interest for the preparation of some narratives and actions created to share new subjects that can allow pilgrims and visitors to enjoy a transversal and interdisciplinary perception of the importance of thermal heritage in this territory. Consequently, the first sub-pilot was focused on an area within the southern part of the Tuscany region, which was deemed of interest in order to understand the uniqueness of the territory from different point of views, such as, in this



1 | The Romea Routes to Rome and the area of Val d'Orcia among the Francigena Route in Tuscany, including specific details of the area analysed in this article (maps ed. by authors).

case, its geology and archaeology, and the rich and interesting manifestations of thermalism with a diachronic vision of thermal landscapes since Antiquity (about the Ancient thermalism in Italy, see among others, the last volumes derived of the *Aquae Patavinae* project in Bassani, Bressan, Ghedini 2011; Bassani, Bressan, Ghedini 2012; Bassani, Bressan, Ghedini 2013; Annibaletto, Bassani, Ghedini 2014; Annibaletto, Basso 2014, 79. Some others studies should be mentioned, like the studies by Guérin-Beauvois 2015; Guérin-Beauvois, Martin 2007, among others). Against that background, we have analysed specifically the thermal heritage of this territory and, to do so, we have selected some interesting cases of studies: the thermal towns of Chianciano Terme, Bagno Vignoni, Bagni di San Filippo and San Casciano dei Bagni, as some excellent examples of the different perspectives of study about the thermalism through history.

Analysing a historical thermal area: The *Clusini* territory

According to our proposal of offering a joint vision of geological, archaeological, and geographical factors shaping this region, we have focused this research on the study of the Bagno Vignoni territory as one of the most interesting areas to analyse the role of mineral-medicinal waters since Antiquity (Chellini 2002; Bassani 2014; Donahue 2015). Nevertheless, as a starting point to discover the singularities of this town, we have had to consider the landscape from a general point of view. Indeed, the present landscape of this territory is not only the result of a cultural rural agricultural history as pointed out by UNESCO, but also of natural processes linked to geological history dating back millions of years. The area is marked by a succession of gentle hills that make up the characteristic landscape of the Val d'Orcia, and consequently the Tuscany region.

The geological history of the Tuscan hills is the result of the collision between Europe and Africa. While in other areas of the Apennines the folding process is still underway, in this area a series of tectonic depressions or basins, oriented NW – SE and delimited by faults arranged

in steps, were formed starting in the upper Miocene (around 6 million years ago). Val d'Orcia is placed within one of these depressions, the Radicofani basin, which is bordered by Mount Amiata on the western side and Mount Celona on the eastern side (Vezzoli, Principe 2020). As a result, this part of the Tuscany region is a great area to take a journey through time from millions of years ago when volcanoes were formed, to historical times when mineral-medicinal waters began to be exploited and thermal towns were built around springs. All these phenomena have created a singular rural landscape of natural and cultural thermal heritage where the diachronically use and exploitation of these natural resources for many functions should be considered and analysed in detail (Pola *et alii* 2014). Historically, the importance of the thermal springs of this territory was already mentioned as *Fontes Clusini* cited by Horatius in the I century BC in the ancient *Etruria* province, that is to say, the thermal springs related to the Etruscan and Roman city of *Cleusi/Clusium*, the modern Chiusi (Chellini 2002; Ghedini 2014). People in Antiquity flocked to these thermal sites to cure their illnesses (mainly stomach aches as indicated in the ancient text) by drinking these waters (Annibaletto, Basso, 2014, 79-80; Mantovanelli 2014). Because of considering those waters as sacred healing areas some of these mineral springs were also equipped with *sacella* and sanctuaries. Hence, the *Fontes Clusini* were described according to their healing function:

> Quae sit hiems Veliae, quod caelum, Vala, Salerni / quorum hominum regio et qualis uia (nam mihi Baias) / Musa superuacuas Antonius, et tamen illis / me facit inuisum, gelida cum perluor unda / per medium frigus; sane murteta relinqui / dictaque cessantem neruis elidere morbum / sulpura contemni uicus gemit, inuidus aegris / qui caput et stomachum supponere fontibus audent /Clusinis Gabiosque petunt et frigida rura (Hor., *epist*. 1, 15, 8-9).

> What's the winter like, my Vala, at Velia, what's the climate at Salernum / what sort of people live there, what kind of road is it / for Antonius Musa makes Baiae useless to me, and yet puts me in ill favour there / now that in midwinter I drench myself in cold water. Of course the town murmurs at its myrtle-groves being deserted / and its sulphur baths despised, so famous for driving a lingering disorder from the sinews / and takes offence at invalids who dare to plunge head and stomach under the showers / from Clusium's springs, or who repair to Gabii and its cold countryside (Hor., *epist*. 1, 15, 8-9 trasl. Fairclough 1929).

According to this text, although there is a discussion about which healing springs *Fontes Clusini* were, Horatius was probably talking about all the numerous mineral springs around this Etruscan-Roman city (Soren *et alii* 1998; Paolucci 2021; Chellini 2002, 145-165). Indeed, some of the closer and richer thermal areas to be included in this description could have been Chianciano Terme and San Casciano dei Bagni, because of their proximity, the quality of their waters and their abundant flow. It is also demonstrated by the archaeological remains of this period found there.

For example, Chianciano Terme is located just 10km away from Chiusi, and 20km from the Via Francigena route. It is famous for its salubrious waters, with 4 main mineral springs: Acqua Santa, Acqua Fuculi, Acque Sillene and Acqua Sant'Elena, specially indicated for liver treatments due to their mineralitation (mostly bicarbonates, alkalines, sulphated waters, at

2 | The natural thermal basin of Bagni San Filippo named “White whale” (ph.CC).

24-38ºC; cfr. Rosetti, Valenti 2013, 109-112). In those springs, there are various examples of Etruscan and Roman archaeological remains linked mostly to some ancient sanctuaries. One of the most interesting sites in this town is the archaeological sanctuary of Mezzomiglio, from the Late Etruscan and early Roman Imperial period, studied by the American archaeologist David Soren at the end of the 20th century (Soren *et alii* 1998; Soren 2006; Mecchia 2010).

Another fascinating site, considered also like *Fontes Clusini*, is San Casciano dei Bagni (23km away from Chiusi, and 6km from Via Francigena route), a Medieval town with a very long thermal tradition. In fact, this town has been considered the most abundant in thermal water in Italy (with 38 thermal springs: Chellini 2002, 145-151; Mariotti, Tabolli 2021, 109) and boast one with the largest flow rates in Europe (mainly fluorinated, sulphated, calcic, weakly sulphurous, with variable temperature between 27 and 43ºC; cfr. Rosetti, Valenti 2013, 35). In this town it was frequent to discover Etruscan and Roman anatomical ex-voto and some epigraphs linked to some different thermal springs (Iozzo 2013; Salvini 2014). Nevertheless, recently, close to the best open thermal pool of the town (the Bagno Grande), an amazing Etruscan and Roman thermal sanctuary was discovered in 2019, and fortunately, the archaeological excavation is in progress with extraordinary discoveries (Mariotti, Tabolli 2021; Mariotti *et alii* 2022).

The importance of thermalism in this area was also highlighted in the Medieval period, as is well demonstrated in the different studies on this subject (among others, Guérin-Beauvois, Martin, 2007, Boisseuil 2002; Boisseuil 2015; Chellini 2002). Thus, following these authors, since the XIII century, when the pontifices made the “*creatio corporis*”, it was frequent to take to “summer towns” to get out of the city to recover their health. In this regard, each city-State of this territory established rules to identify, value and protect mineral-medicinal waters. Consequently, some pools were built or readjusted in this period to preserve and use the qualities of these thermal and mineral springs, as a natural resource of great value, fitted in some cas-

es with constructions surrounded by a wall without a roof (Boisseuil 2015, 106-109). At the end of the Medieval period, it was so important to recognise the mineral characteristics of these waters that some Lords considered it necessary to prepare a catalogue of the thermal springs of some of these Italian territories, as was carried out by Michel Savonarola, among others, in the XV century (Pasalodos Requejo 2020).

One of the best examples of this period also in this Tuscany region, is the thermal site of Bagni San Filippo [Fig. 2], a small Medieval town made up of a much-reduced number of houses, under the control of Siena republic. Although it is said to have been occupied in the Roman period, we don't have enough evidence of this chronology (Chellini 2002, 151) to recognize this settlement. Nevertheless, there is a very rich Medieval documentation, and it is said that it had been visited by many personalities since the XII-XIII century due to the quality of its water. For example, the Medieval thermal spa was not preserved, but there is an inscription indicating the restoration of the building in the XVI century by Cosimo I de Medici (Boisseuil 2002, 284-291). Moreover, as we will see, there are also nowadays some popular and free natural pools and agreeable travertine waterfalls because of mineral waters (sulphurous, bicarbonates and calcite-rich waters at 52-36ºC). Unfortunately, the lack of archaeological studies in most of these sites do not allow the origin and the chronologies of these constructions to be identified. It is therefore advisable to promote new research to identify the diachronic evolution of the use of these thermal waters.

Bagno Vignoni: a proposal of an integrated study between geology, history, and archaeology in a thermal hamlet through centuries

To evaluate and recover the historical and economical value of the diversity of uses of thermal and mineral waters in this region during centuries, we have highlighted the thermal village of Bagno Vignoni, linked directly to the Via Francigena Route as one of the best examples of the enormous relevance that thermalism had in some territories along centuries, since Antiquity until nowadays.

Bagno Vignoni village was built on a hillside by the Orcia River, in the Siena province. According to the topography, the Via Francigena, the Medieval way, crossed the Val d'Orcia very close to Vignoni town and it's a small thermal hamlet sited some hundred meters downhill.

1. Thermal waters and healing spas

This hill, sited in front of the Rocca di Tentennano, is formed by Cretaceous (145 to 65 million years old) limestone. Whenever rainwater goes through the limestone, it dissolves calcite and other minerals, such as sodium chloride (table salt) and calcium, magnesium and sodium sulphate. This mineral-enriched water percolates to aquifers where its temperature rises due to the geothermal heat coming from the magmatic activity of the volcano of Mount Amiata (Vezzoli, Principe 2020). This warm water comes to the surface through faults as a thermal water spring. As it comes to the surface it loses pressure making the CO2 dissolved in the water become gaseous again, therefore leading to the "sparkling water" phenomenon. This fact can be

3 | Plan of the Bagno Vignoni town, indicating the different points mentioned in this article (ed. by authors); aereal view of the "water square" (ph.CC).

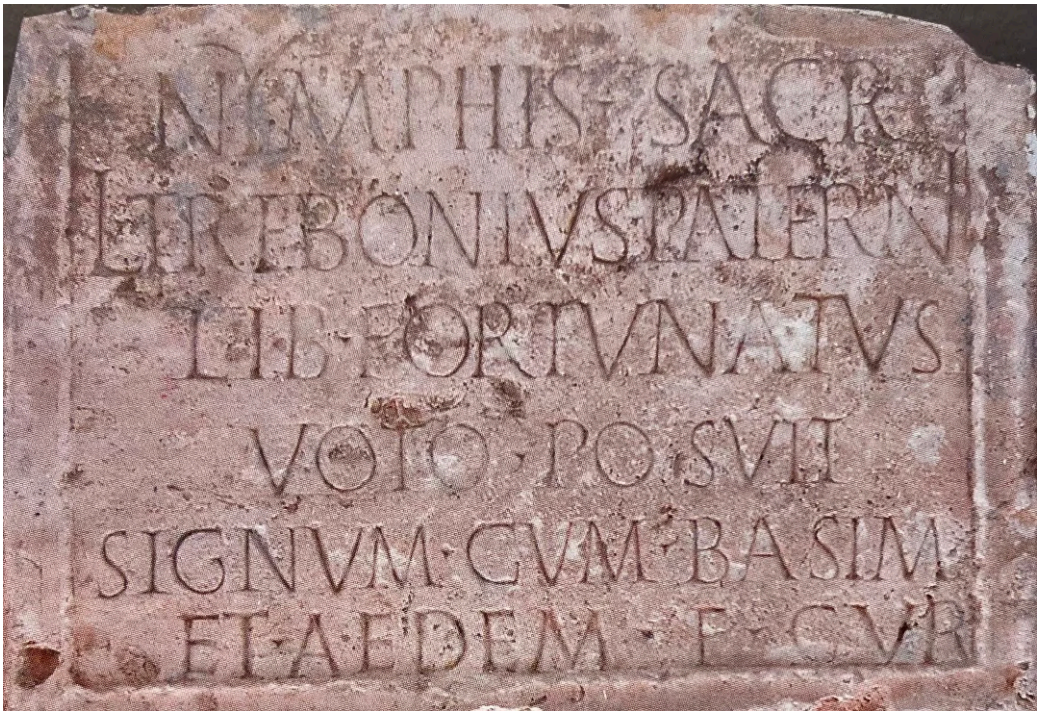
observed in the main square of this thermal hamlet where water gushes up from the bottom of the pond [Fig. 3].

The antiquity of this site has not been yet analysed by any archaeological project in order to identify Etruscan or Roman remains in it, even though it was also part of the *Clusini* territory, although the existence of thermal mineral waters in this place, as well as the mention of the discovery of various epigraphs associated with these waters seems to confirm this (Chellini 2002, 161-162). Proof of this origins is the epigraph (CIL XI, 2595) located in this town dedicated to the Nymphs [Fig. 4], which is preserved in one thermal establishment, and which refers to a small temple (*aedes*) and base of a statue dedicated by a freedman named *Lucius Trebonius Fortunatus*, from a well-documented family in Chiusi and in its territory (Chellini 2002, 159-161; Arnaldi 2006, 89-81; Petraccia *et alii* 2013, Basso 2014, 194; Paolucci 2021, 67-68):

4 | Epigraph dedicated to Nymphs, travertine, II century BC, Bagno Vignoni hamlet (ph. in Paolucci 2021, 67, 5.9) NYMPHIS SACR(um) / L(ucius) TREBONIVS PATERNI / LIB(ertus) FORTVNATVS / VOTO POSVIT / SIGNVM CVM BASIM / ET AEDEM F(ecit) CVR(avit).

The water that flows here is rich in sodium chloride, calcium carbonate and iron, calcium, magnesium and sodium sulphate, with a temperature between 43-49°C with various upwelling points (Rosetti, Valenti 2013, 116). Undoubtedly, the most significant spring is the one that emerges precisely from the ground and appears collected by the deposit of this central pond that makes up the main square of Bagno Vignoni. That point could correspond to a Medieval structure(cited already in the XI century), with a probable construction base from Roman times, although it is not possible to confirm in the absence of archaeological and stratigraphic studies of this construction.

This pond has a maximum width of 26.6m (90 Roman feet), with a possible original maximum length of approximately 70.4m, almost 2 Roman acts (Chellini 2002, 159), rounded by stairs and blocked doors. The southern part of the pool was later cut by the portico of Santa Caterina, and the subsequent construction of a thermal building right in the southern part of the



pond. This aspect has been confirmed by the review of the Medieval sources that indicate that the chapel was in the middle of the pond (described by Tondi in 1334), and this is also reflected in the painting of the XVII century that is preserved in the immediate church of St. John The Baptist's Church, as has been investigated by C. Chellini (Chellini 2002, 160) [Fig.5].

Likewise, the configuration of this space, its measurements, and the designation in the XVII century of this pool as "the great Roman Bath" make this author consider that it could be an original pool from Roman times, probably between the 1st and the II century AD judging by the inscription (Chellini 2002, 160-161), although much modified in later centuries (case of the wall that delimits the pool and the doors walled on it). This mentioned portico could be justified as a bridge from one side to other of the pool, but also as a Christianisation of ancient pagan cults, including the presence of a Chapel to St. Caterina, and also the next Medieval church dedicated to St. John the Baptist, where the mentioned painting was preserved. Following D. Boisseuil (Boisseuil 2002, 303-312), this portico-bridge separated this basin in two pools, one for men and one for women, as was frequent in the Middle Age.

Nevertheless, the pagan appreciation of these healing waters continued over time, as it is said in a later inscription in a marble slab (it is said to be dated in the XVI century) preserved there, which is surprisingly written in Greek letters. This inscription has been preserved in one of the pillars of the St. Caterina portico, and it includes a poem dedicated to *Naiades* (divinities as-

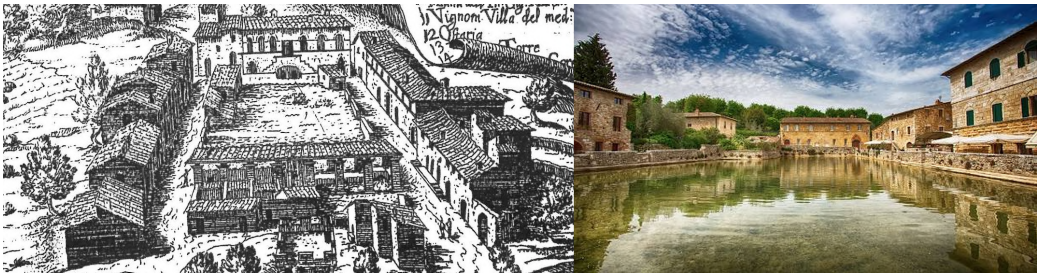
5 | Detail of a painting representing the main pool with the portico as a division, XVII century, St. John the Baptist church, Bagno Vignoni (ph. by authors).

sociated to waters) by Lattanzio Ptolomeo from Siena, asking for good health using "these hot waters":

> Oh Naiads, who live in these hot vapours, free the perennial fire among the waves, restore with your eternal flow the suffering ones free of odious death, I salute you, and you provide copious waters. Flow charmingly, o good springs, and with your flow bring health to the infirm and a very gentle bath to the healthy. Both will be grateful to you. Lattanzio Ptolemeo Senese (trans. by Sandra Romano for this article).

Be it one way or another, the truth is that the thermal water that flows here was decisive in the existence and development of this small town, especially since Medieval times, in which its strategic location at the crossroads intersected, among others, by the Via Francigena, as well as the existence of this abundant flow of water and the health effects recognized throughout the province, show the importance of this site during centuries as a space of economic and health interest. Nevertheless, this fact made it also the scene of numerous conflicts, for which the population suffered various periods of destructions over the centuries (Cianci *et alii* 2000, 35-38).

Although this pond could have been used as the main pool for bathers in the early days, there are also indications to different bathhouses where these waters were used at least since the Middle Ages [Fig. 6]. Also, different types of lodgings and hospitals for pilgrims, travellers and water users have been preserved around this central square, as well as the Ponte dell'Orcia hospital (*hospitalis de balneis*) mentioned in Medieval documentation, where pilgrims and visitors could have a rest to recover their health in the XIV-XV century (Boisseuil 2002, 18-19). Thus, in Medieval times, mainly between the XIII-XV centuries, the main houses were built to welcome the distinguished bathers who visited these waters (the presence of St. Caterina is documented in the XIV century – hence the devotion of this place. It is popularly said that numerous personalities came to visit the waters, such as Pope Pius II (who had a house built in there) and Lorenzo de Medici (also known as Lorenzo the Magnificent). Nevertheless, the importance of these thermal spas was developed mainly since the XVIII century, and nowadays, this town also combines ancient and Modern thermal spas, but also natural free pools that can be visited in the Parco dei Mulini area.



6 | Thermal bath represented at the southern part of the big basin. Detail of Bagno Vignoni, engraving of Vincenzo Ferrari in Amminstrazione Tenuta S. Quirico, 1700 ca. (ph. Cianci *et alii* 2000, 56). View of today (Ph. CC).

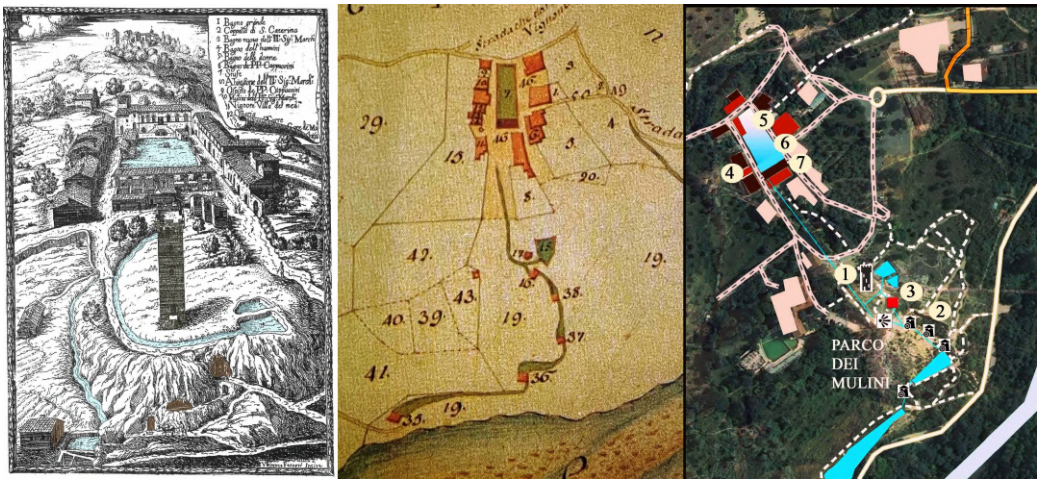
The importance of waters in this town was not only linked to healthy properties but also to industrial purposes, becoming a successful site due to the importance of watermills and fullers and the curative values of these waters. This development was partly a cause of the unique topographic configuration of this town.

2 Another function: the "Industrial" uses

As we have already mentioned, thermal waters could be also destined to other uses (Bassani A. 2014; Bassani 2016). Waters coming from the main pool and other springs in the area, were reused as an industrial resource at least since the Medieval period, taking advantage of a stable running flow of water, despite droughts or seasonal flows.

Consequently, this town was a significant settlement not only because of their thermal baths, but also due to the Medieval and Modern fuller and watermill industry (Boisseuil 2002, 12) like in the very famous Saturnia cascade, in Grosseto; Bagno di Rapolano, Bagno di Armaiolo, Bagno a Valiano, Bagno di Roselle or San Casciano dei Bagni, among others. So, firstly, this watermill industry in Bagno Vignoni (recently restored in the 'Parco dei Mulini' – watermills park – Cianci *et alii* 2000) was built to take advantage of the rich flow of thermal water discharged from the town to the Orcia river sited at foot of the town with a significant slope. This initial problem was used here as an advantage, as they were provided with hydraulic energy after storing and channelling the excess of thermal water from the main square towards the river. In this way, a waterfall was established and the flow allowed the watermills to be driven. These structures were also created on the travertine formed by these thermal waters over centuries, and that progressively, and up to the present, were covered with tuff and new travertines that make up the thermal waterfall present in this enclave [Fig. 7].

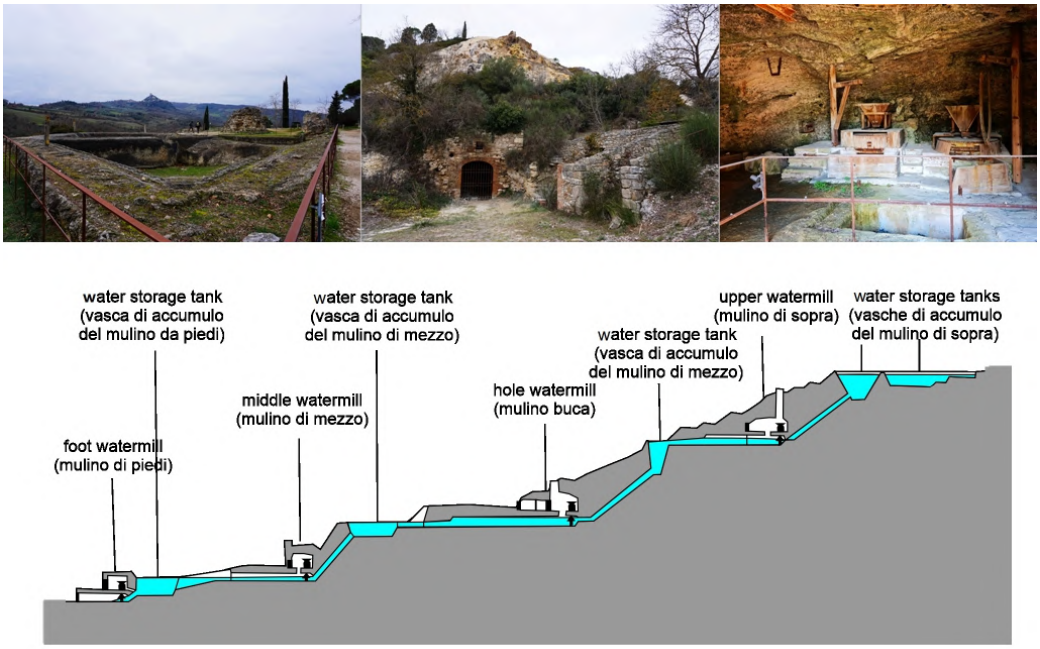
So, these watermills were built in tiers to make the most of the waters derived from the main pool mentioned above and also known as 'Bagno Grande'. This area was configured according to the needs and uses of these watermills, possibly around the XIII century as reflected in the "Carta Libertatis" of 1207, in relation to some mills close to the current Rocca d'Orcia (Cianci *et alii* 2000, 35).



7 | Plan of Bagno Vignoni, including the main pool, the thermal spa, the tower, and the hydraulic system for watermills, Vincenzo Ferrari's engraving, Amministrazione Tenuta S. Quirico, 1700 ca. (ph. Cianci *et alii* 2000, 56); Catasto di Montepulciano, 1775, with Bagno Vignoni and the Mulini, Archivio di Stato di Siena (Cianci *et alii* 2000, 37); Complete plan edited by authors (cf. Fig. 1).

Its maintenance and control were later under the supervision of the Republic of Siena, although after various capitulations, they later became part of the fiefdom of San Quirico, as part of the property of the Gherardini family since 1676. It is from this author that we obtain a more extensive description of the 4 mills that are still preserved and that can be visited in this park [Fig. 8]: the "mulino da capo", "mulino buca", "mulino di mezzo", "mulino da piedi", according to the documentation of the XIX century. These mills were active until 1950 (Cianci *et alii* 2000, 35-38), as a local resident also confirmed to us. To supply them with more strength, in the upper part of the *Parco dei Mulini*, it can be still seen, although without water, the water accumulation pond ("gore") as well as the channel that would derive the water from here. These would be horizontal wheel mills that were created after XI century in Italy within the mechanization process developed using hydraulic energy (Boisseuil, 2002b). The wheels would be in a buried or semi-buried place ("carceraio"), to where the water was conducted through a conduit to make the wheel move. The case of Bagno Vignoni, however, is unique due to its morphology, since its structure is largely hypogeal, excavated directly into the travertine layer formed by the carbonated deposits of the thermal water that feeds these mills (Cianci *et alii* 2000, 39-42). This interesting adaptation to travertine clearly manifested the need for its constant maintenance to avoid mills being blocked by calcareous concretions. Likewise, today's natural outdoor pools that can be enjoyed at the foot of the mills, were once squares or spaces for cleaning the grain that was ground in this site.

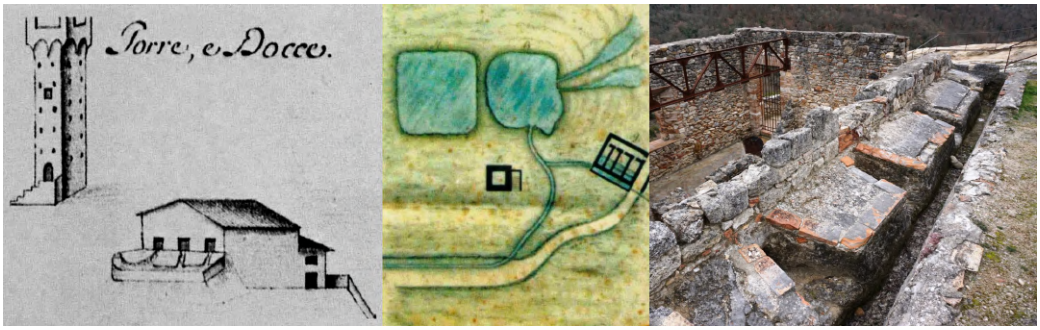
Another interesting and singular aspect that can be found in this town related to these waters and with the unique configuration of the topography, was the building known as *Fabbrica ad uso delle docce* ("Shower building") where the presence of pipes that take advantage of the



8 | Above: water storage tanks at the top of the hill; façade of the foot water mill; cave excavated for the water mills, with the reconstruction of part of the engineering (ph. Authors and EAVF). Down: Section of the water mills hill, with the different infrastructures created for its functions, taking advantage of the cascade created by the thermal waters (ed. by authors, after Cianci *et alii* 2000, 44-45).

fall of water for its use like showers and bathrooms has been documented. Although this type of infrastructure has been mentioned by authors (Gómez *et alii* 2017), who call on ancient texts, very little evidence has been identified with this function. Nevertheless, there are very few examples of this type of building in the Medieval and Modern period. The Bagno Vignoni establishment is therefore one of the best preserved and documented ones, taking advantage not only of the inclination of the hill, but also of the copious flow and the properties of the thermal waters [Fig. 9]. From the recovered written and graphic documentation, it was probably built at the beginning of the XVIII century and was in use until the end of the XIX century (Cianci *et alii* 2000, 52-54).

Finally, as we will see in the next point, the industrial use of these waters and its derivates were also used for different proposals. For example, as local travertine was of good quality, it was exploited to obtain ashlars and block were used in constructions all around this territory since antiquity (for example, in the Nymphs altar). Indeed, the importance of this industry was especially relevant in Bagno Vignoni at least since the beginning of the XI century, and it is equally manifested by the construction of defensive and surveillance elements, which in some way, served as a deterrent and functional element to protect structures, trades and commerce



9 | Pictures of the restored structures of the “Shower building” in Bagno Vignoni, detail of the representation of the tower and shower bath in the “Cabreo” document, XVIII century; the same in Pianta di Bagno di Vignoni”, XVIII century, both of them in *Amministrazione tenuta San Quirico* (ph. in Cianci *et alii* 2000, 54); Archaeological remains of the top of the structures (ph. by authors).

that was developed all around this population. Thus, in addition to the tower present in the village of Vignoni located on top of the hill with and excellent visibility to control the entrance routes to the town and place of Bagno as well as the territory in general, another tall tower was built in the area currently comprising the Parco dei Molini, between the large water storage pond preserved and the different channels that lead the water towards the beginning of the cliff. Although today only the foundation of this construction is standing, a tower with an internal staircase and a completely square plan was built approximately between the XII-XIII century, and would remain standing, as reflected in the plans and graphics of the moment [Fig. 10], until the middle of the XIX century, when it was ruined, possibly due to a movement of the earth on which it sits (Cianci *et alii* 2000, 52-55).

3. Natural heritage

Finally, the free travertine pools, which are also included in the Parco dei Mulini are one of the most significant elements in Bagno Vignoni, and one of the most valued aspects by visitors. The carbonate deposits created by thermal waters dominate this area. When a hot surge emerges, it loses pressure and cools down, losing CO2 rapidly. It does more so if the areas where the water flows are covered with plants or algae. This leads to the precipitation of calcite forming two specific types of limestone: tufa and travertine. Tufa forms when calcium carbonate rich water precipitates on moss and higher plants. Travertine, usually associated with thermal waters, forms when calcium carbonate precipitates extensively on microbial and algae veils. Travertine is a unique type of limestone (a rock formed from the mineral calcite – calcium carbonate) deposited by calcium bicarbonate rich springs, such as the thermal surges we find in this area. When rainwater mixes with atmospheric CO2 it forms carbonic acid and becomes slightly acidic. Thus, when rainwater goes through carbonate rocks, as the ones we can find in the hills around the Radicofani basin, it dissolves calcite in the form of calcium bicarbonate. Furthermore, warm, acidic and CO2 rich waters can dissolve more calcite. This

10 | Plan of the Bagno Vignoni hamlet, Ettore Romagnoli. *Terme di Vignoni*, first of XIX century, where the Vignoni town can be observed on the top of the hill, an also the Bagno Vignoni houses and the tower which protects the shower building and the watermills, and the infrastructures created for the mills (ph. in Cianci *et alii* 2000, 35). On the right, the archaeological remains of the tower in Parco dei Mulini (ph. by authors).

water feeds the aquifers in the Radicofani Basin and surges along the tectonic faults bordering the basin as in Bagno Vignoni.

As is well-known, its name (travertine) derives from *lapis tiburtinus* which means "stone quarried at *Tibur*" – a thermal town, Tivoli, closed to Rome–. Travertine mostly has a fibrous texture and appears as an accumulation of very fine layers with a lot of pores. The rate of growth of travertine is very slow (it depends on composition of waters, but around 1 mm per day), so the pools you are seeing have taken centuries to form. This is therefore a geological asset to respect and protect because of their fragility (Erfurt 2021).

Specifically, in Bagno Vignoni, these pools have been formed from the carbonate deposits created by a stream of the thermal water derived of the main pool (Bagno Grande) spilled from a network of watermills and filling machines built around the XIII century as the surplus goes down to the Orcia River. Other similar pools can be visited in Bagno di Petriolo, Bagno di San Filippo or Bagno di Saturnia in the Toscana province, not far from the Via Francigena, as some of the best European examples of this type of natural pools conditioned by human constructions and natural phenomena (Capezzuoli *et alii* 1999). Also, the blocks of travertine in the area were extracted from quarries, exploited probably since Medieval times or even earlier to build most of the houses of this town (Cianci *et alii* 2000, 62-71) [Fig. 11]. One of the main Travertine quarries attached to Bagno Vignoni is 1km away from the open free pool at Parco dei Mulini. This quarry has been also considered part of the historical territory that was included in a general programme of environmental recovery called Parco delle Acque, degli Ecotipi e dei Travertini (Cianci *et alii* 2000, 21-28) that has not been created yet.

Conclusions

Even when the pilgrim's main focus is on walking the way, the cultural and natural information about the route can give them a chance to discover the way as a new reality where each oc-

11 | Cascade and natural thermal pools above travertine hill in Parco dei Mulini, and travertine quarry close to Bagno Vignoni, showing the characteristic lines and surface of this material (ph. by authors).

casion is based on the possibility of understanding the landscape from different themes and perspectives. In this project we have suggested offering pilgrims ways to discover their pilgrimage routes from different points of view, alongside to the existing offers to visit cities or monuments from different perspectives that have been developed in the last few years (e.g.: the city of Rome as the URBS that conquered the ancient world; the architectural analysis of its buildings; the water in Rome, López Salas 2021 etc.). Our objective has been to do so in ways that allow an understanding of the territory, but also to open new opportunities for visits and create alternative routes that allow new aspect of natural, cultural and intangible heritage areas to be discovered.

According to this proposal, and in accordance with the main subject of our pilot of the European rurAllure project dedicated to thermal heritage on the Routes to Rome, the content and organization of the short narratives created have been developed based on two main axes: a) On the one hand, the presence of sites of interest linked to Thermal heritage that are not very far from the Way itself, and not always very well-known; b) On the other hand, the possibility of developing new experiences using a general narrative about local and general Thermalism (mainly, from the historical and geological point of view) where the natural and cultural manifestations of this phenomenon in this region are so abundant and significant.

Furthermore, the opportunity to investigate this territory has allowed us to find very good examples of the interaction between natural and cultural solutions, including the long tradition of using mineral-medicinal waters since the Etruscan and Roman period, but also during the following centuries until nowadays. Thus, as we have seen, the value of these waters is not only considered from a social and health point of view, but also as an economic and political resource that has contributed to the configuration and development of very different historical territories. According to this proposal, “thermal” points should be highlighted on the landscape recognizing their potential role, not only as wellness destinations, but also as sites to complete our perception of the territory and the evolution of some towns and regions. Our experience

in the European rurAllure project has led to the consideration of the ideas: the importance of creating interdisciplinary teams to improve our knowledge of landscapes and territories; the value of collaboration with local and regional actions to promote and develop the heritage of rural areas; and the importance of helping to understand, enjoy and promote rural territories asserting their singularities (in this case, thermal and natural ones), considering tradition, history and archaeology as economic and social resources.

Finally, considering the Thermal heritage from a diachronic perspective, including natural and cultural phenomena, we would like to promote "open minded" actions to create scientific narratives. Furthermore, to improve the perception of archaeological sites, the relationship between architecture, geology and geography, from a microscale to a macroscale should be taken into account, thus opening up possibilities to create participative, universal accessibility, and in continually updated experiences, which include the essential contributions of the different groups that actively embrace those sites (municipalities, associations, local vendors and visitors).

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Abstract

Within the European project rurAllure, the implementation of different narratives was proposed to show pilgrims and visitors new and different perspectives of the rich heritage and singularity of the different pilgrimage routes and the territory they pass through. To this end, in WP5, focused on the Italian territory, the main subject of study proposed was thermal heritage in the vicinity of three of the main roads leading to Rome: Via Francigena, Via Romea Strata, and Via Germanica. In this article we present the experience developed on the Via Francigena, specifically in the southern Tuscany region, a territory that is particularly representative of the different manifestations of thermal heritage. Within this territory, we will focus specially on the town of Bagno Vignoni, as one of the most significant sites for discovering the multiple facets of thermal heritage that allow us to understand and enjoy the configuration and the (natural and cultural) history of the territory and the landscape that this road crosses.

keywords | Thermal Heritage; Pilgrimage Routes; Archaeology; Geology; Bagno Vignoni.

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