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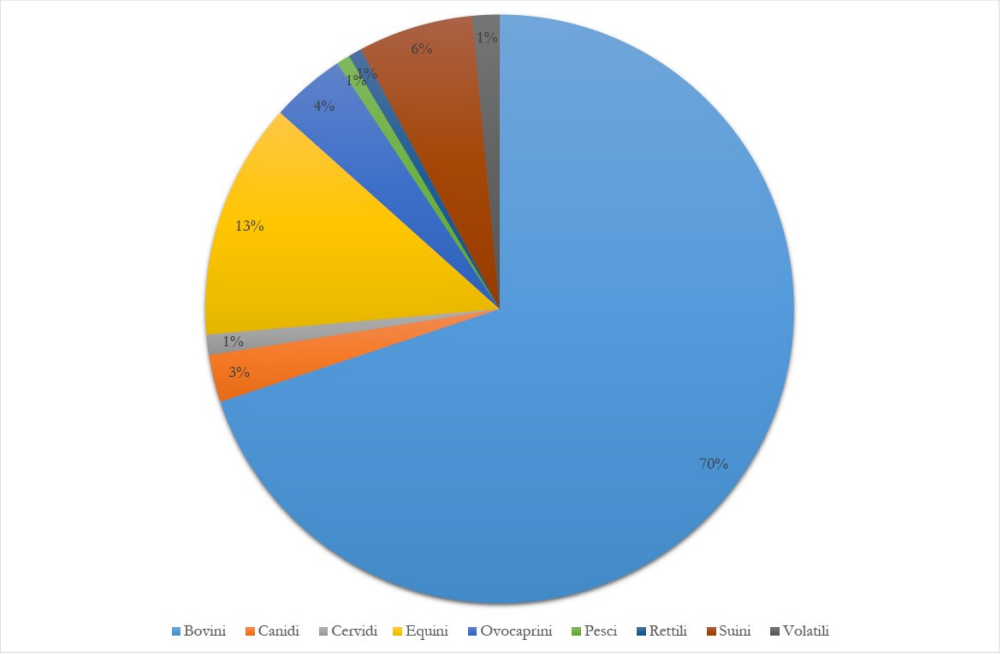
Sommario

Of Souls and Animals

Healing Properties of Hot Springs and Livestock Economies

Edoardo Vanni



1 | Percentage of attestations of full-length animal *ex voto* by species (7th-2sd century BC; modified from Arbeid 2010).

Places of worship and animals: brief *status quaestionis*

The attendance of animals at ancient places of worship is an issue that continues to fuel a lively debate among scholars of various ages and backgrounds. It concerns more generally the relationship between humans and animals in the ancient world in its innumerable facets, including the sharing of spaces, functional, economic, ritual, and symbolic, as well as the dynamics of exclusion/inclusion and overlapping/separation of a non-human agent other than,

but similar to, humans (*Atti Spoleto* 1985; Frizell 2004; MacKinnon 2004; McInerney 2010; Kindt 2017; Newmyer 2018; Mattila, Ito, Kint 2019).

Concerning sacred and ritual contexts, we have begun to ponder and question the significance that particular cultic manifestations of *ex voto* of domestic animals may have assumed. These manifestations, whether they be statuettes depicting the whole animal or anatomical parts of it, are numerous and varied from the ages of protohistory through the entire republican era, found in votive deposits and places of worship in ancient Italy [Fig. 1] (Comella 1981; Bartoloni, Colonna, Grottarelli 1989-1990; Bellini 2004; Comella, Mele 2005; Bassani 2012b, 186-188). Different interpretations regarding them have, on the one hand, emphasized the role of animals within certain religious practices (Meniel, 1989; Van Andringa, Lepetez 2003; Doyen-Higuet 2007; Volpe, Buglione, De Venuto 2010), and on the other hand, insisted on ceremonial and social aspects (Circi, Vitali 2006). In the latter case, linking the presence of bone remains and animal votive offerings in ritual and religious contexts with a desire to highlight the sacrificial character in honour of the deceased or deities (Malnati, Gamba, 2003; Scheid 2008) or as a substitution for the sacrifice itself. In other cases, animal votive offerings have been interpreted as generic offerings made for the successful return from a journey (Stieda 1901; for critiques on these issues, see De Cazanove 2014, 24).

Only recently has this particular category of offering in religious contexts been traced, more appropriately, to the sphere of health as a loose vow, in the full sense of the term, for healing that has occurred (Santillo Frizzel 2004; Santillo Frizzel 2010; Bassani 2011; Bassani 2012a; 2012b; 2012c; De Cazanove 2014), following the lines of what has been hypothesised for human-figure and anatomical *ex voto* (De Cazanove 2009, 357). These offerings are seen as dedicated offerings following a formally subscribed vow that, once fulfilled, compels the dedicator – *damnatus voti* – to perform their vow. In this case, the vow could have been pronounced when the animal was injured or sick (De Cazanove 2012, 31; Paci 2006, 270-275) or as a wish for good health and prosperity for the animals, whether they were companion or work animals, a vow therefore periodic and generic pronounced throughout the year (Scheid 1990, 298-356). No one solution, of course, excludes the other, but they could interpenetrate, overlap, complement or substitute each other as appropriate and necessary (Scheid 2005).

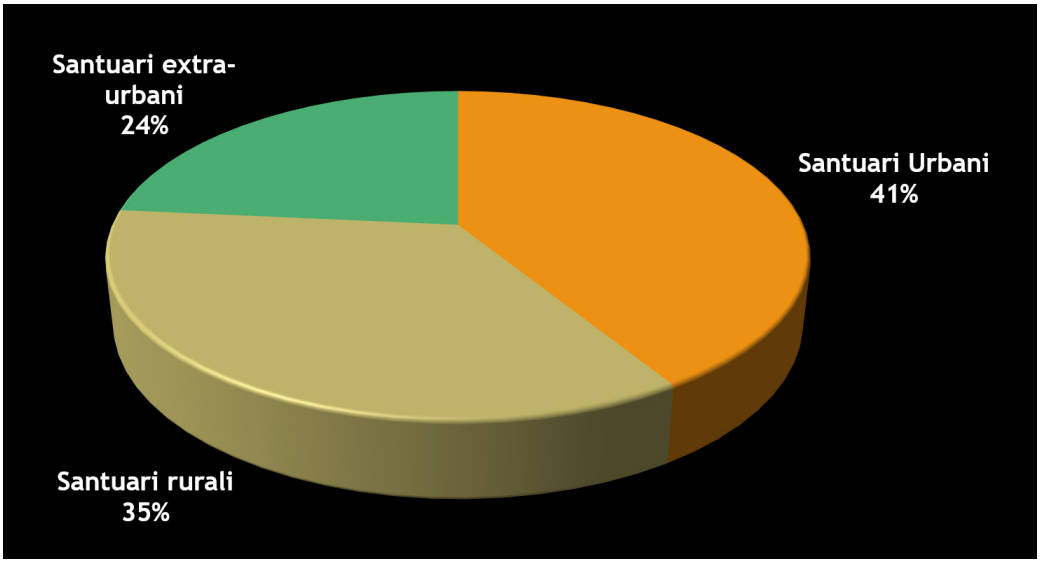
The exegesis surrounding the meaning of animal votive offerings in places of worship and their ubiquitous presence in spaces shared with human beings does not solely pertain to aspects of religion or ritual, whether private or public. It also sheds light on how animals do or do not have access to these spaces, why they are present, and what role they play outside or within the sacred landscape or in livestock economies in general. The 'metaphorical' question, namely whether the animal anatomical part symbolically represents the part in place of the whole or refers concretely to the injured and then healed part, or in the case of whole animal figures, whether it represents the individual animal or generically the herd or flock, does not seem to me to be fully resolved. In particular, the social categories that accessed the shrines to affix

the dedication still elude us, and also, not a secondary problem, which animals and what their productive and economic function was within the sacred landscape (Vanni 2021).

The second order of problems relates to the question of the 'representativeness' of the sample of these *ex voto*, which primarily depict cattle, definitely the most numerous, to a lesser extent horses, donkeys, and pigs, and only rarely, for example, sheep and goats or domestic animals (Söderlind 2004, 278, fig. 1; De Cazanove 2012, 27). Cato's famous passage in chapter 83 refers precisely, for example, to a loose vow for the health of oxen (Cato *De agr*. 83), which along with offerings for their healing also proposes recipes to heal them or maintain their good health (Cato *De Agr*. 71, 103), in which a symbolic and religious level overlaps with a practical one by keeping a close correspondence between a specific situation, illness or injury, and a wish for the individual's preservation. The high recurrence in votive deposits and places of worship of requests for healing and protection of one animal species over another could be explained by the extreme proximity to humans of cattle and horses and their involvement in high-stress physical activities that impair their integrity and survival. The frequency with which figures of bovids or horses appear could refer concretely to a predominant agricultural world around the sanctuary and thus to the social category of peasants and, in general, to draught animals, which, as Columella recalls, are accustomed to injure their legs with the plough or acquire eye infections during ploughing operations (Colum. 6.15.1; 6.17.7). It should not be ruled out, however, that the predominance of both oxen and horses, as well as pigs, is not instead due to their far greater intrinsic economic value than, for example, sheep and goats, making the mobile world of petty livestock inconspicuous in places of worship. The latter, for example, has twice the reproduction rate of cattle, which, in turn, have a much slower growth rate and require a much more significant investment in resources and time for their maintenance (White 1970, 301; Potter, Wells 1985, 34; Barker 1975, 1989).

Healing waters, places of worship and animals

Suppose it now seems widely accepted that the presence of statuettes of animals or anatomical parts at shrines and in votive deposits refers to a specific request for healing. In that case, the situation appears more complicated if we look at those ancient places of worship that arose at thermo-mineral springs or, in general, connected to the cult of water (Santillo Frisell 2004; Veronese 2010). Indeed, for human beings, it is incontrovertible that these shrines were frequented for eminently therapeutic purposes or for phenomena of social and political cohesion through a specific ritual practice involving the concrete use of the waters. This ritual could involve the ingestion of or immersion into the water, for the healing of a whole range of pathologies, including infertility, ocular, gastrointestinal, endocrinological, dermatological problems, or superficial wounds (Zanetti, Rizzi, Mantovanelli, 2012). However, the situation appears more polysemous in connection with both animal frequentation of sacred spaces at thermo-mineral springs. Such frequentation of a healthful place of worship, whether episodic or periodic, involves the repetition of activities prolonged in time, linked to a concrete practice and conditioned by the use of a specific resource, such as immersion in water, and therefore activates at the same time phenomena of mobility to reach the place of worship and an ap-



2 | Animal *ex voto* and their prevalence in Republican shrines (modified from Söderlind 2004).

propriation by the subjects involved. The presence of specific structures at water sanctuaries such as ponds, basins, and canals is the result of planning to regulate the flows of humans and animals and to arrange a division of spaces that are functional for the many planned activities.

In addition, the rituality subtended by the dissolution of the vow for healing that has occurred involves an investment in terms of time (waiting for healing and the production of the *ex voto*) as well as in resources. We can ask: were there dedicated, shared spaces or different immersion times for animals and humans? Were animals also allowed to frequent the oligomineral waters? And if so, which ones? What parties were involved in the practice of animal care? Many of these questions will remain unanswered, but we will try to construct a framework of suggestions to fill in some of them.

Here, too, there are many problems. The occurrence of animal votive offerings related to hot springs and waters, in general, is primarily concentrated in central Italy, and their occurrence is significantly lower than that of human votive offerings. However, this is in contrast to what we know from ancient sources about practices related to veterinary medicine, for example. Barbro Santillo Frizell analyzed the literary and archaeological evidence related to thermal waters and the presence of animals from the particular perspective of their use for veterinary purposes, concluding that not only did “Ancient man know that the health of the animal influenced the quality of the end product, whatever it was: wool, meat or cheese” but also that “Many of the sacred places with particular healing waters were probably used for animals earlier than for humans”, and, more generally, this topic of study “is a vast subject to be

explored overall in the Mediterranean area where large scale transhumance was practiced" (Santillo Frizell 2004, 88). These reflections highlight well, without perhaps grasping all its implications, the link between the strategic location of these particular points of 'electrification' in the landscape, mobility and the practice of transhumance (Vanni 2021, 71), a scenario well evident for Daunia (Apulia), where we know from Strabo how the practice of cleansing the flocks in thermal waters for the cure of epizootic ills was in use precisely among transhumant shepherds (Strabo 6.3.9-10). The same well-known inscription from Tivoli, found in 1733 at *Aquae Albulae* along the Via Salaria and not far from the temple of Hercules, mentions a horse named Samis, injured at Roselle by a wild boar and healed thanks to the healing properties of the waters, illustrates well the use of this practice for different situations but in the apparent regime of mobility practices (*CIL* XIV 3911; Paci 2011; *contra* McDonough 2011, 658). In a passage from Ovid's *Fasti*, where the ritual and prerogatives of Pales the *dea pastorum* (Goddess of Shepherds) are described (Heurgon 1951; Coarelli 2012, 168-197), as protector of animals and flocks, it is intuited that the presence of animals must not have been unusual in sanctuaries and sacred areas placed near hot springs, alongside that of humans, precisely because the latter were used for veterinary purposes (*Nec noceat turbasse lacus: ignoscite, nymphae / mota quod oscura ungula fecit aquas / tu, dea, pro nobis fontes fontanaque placa / numina, tu sparsos per nemus omne deos*). Again, from Ovid, we know that the ritual of Pales involved the use of sulfur fumes to sanitize the stables and the animals themselves (*caerulei fiant puro de sulphure fumi, tactaque fumanti sulphure balet ovis*, Ovid. *Fast*. 4. 756-760). M. Söderlind, precisely by considering the presence of humans and animals in the sanctuary contexts of the 4th-1st century BC [Fig. 2], through that particular cultic manifestation that are the terracotta votive offerings in central Italy has recognized two parallel phenomena related to therapeutic and medicinal functions: "Above, human and animal votive figures have been considered as parallel phenomena. The point of departure for the discussion is a catalogue of ninety-three sites where both kinds of figures appear together. They suggest that man and animal were given very similar religious attention in town and countryside alike. Function and significance were, therefore, in all likelihood, in several respects similar. Both can probably be associated with a procreative and a medical/therapeutic sphere" (Söderlind 2004, 283). In this regard, Varro speaks explicitly of *medicina pecudum* and hints at the existence of a specialized person in charge of veterinary care of flocks (Varro *Rust*. 2.10.5), while Virgil on several occasions in the *Georgics* refers to the activity of soaking sheep in waters for the treatment of scabies (Verg. *Georg*. 3.440-450). Pliny the Elder, on the other hand, mentions the use of muds and clays of waters, probably salty-bromine-iodine, for the treatment of human and animal diseases (Plin. *nat*. XXXI, 41.86) as well as the importance of an ointment elaborated on a vegetable base, the excipients of which were without doubt bitumen and the fact of using sulfur water, to be used as an eyewash to the compound, while the same vegetable bitumen was used to treat wounds (Plin. *nat*. XXXV, 177; Taborelli 2014, 26; Nicosia *et alii* 2022, 19-20; Zambito 2022, 96).

3 | The valley system gravitating around Contursi Terme and an image of the 'vagnatura' ritual (lower right) (source: Google Earth).

Modern and ancient dipping: some analogies

These brief and partial reviews of sources indicate how well known to the ancients, from an empirical point of view, were the hydro-chemical qualities of certain types of waters and also the use of their by-products for therapeutic purposes (Polizzi, Ollivier, Bouffier 2022; Zambito 2022). This indicates a very precise differentiation and specialization in practices, depending on the type of source and, in turn, on the spheres of pertinence of the deities (Oberhelman 2014), as well as the widespread presence of sheepherders at the sources and shrines connected to the thermo-mineral waters. A direct causal relationship, as a consequence of the co-presence of humans and animals in the same spaces of the sanctuaries, for the treatment of a variety of pathologies, has been hypothesised, for example, regarding the votives of Ponte di Nona, a tangible result of animal-borne diseases (Potter, Wells 1985; 1989, 100).

This healing practice for animals, for epizootic purposes, is also corroborated by numerous modern and ethnographic sources at hot springs. Worthy of mention is the phenomenon of saline waters in the Modenese plain, i.e., liquid and gaseous hydrocarbon emissions mixed with mud, used by farmers to treat ailments of the joints or muscles of animals, notably sheep at the Sassuolo spa at Salvarola, built in the 19th century (Guandalini 2006, 275).

4 | Dipping of sheep and goats by Kazakh and Uyghur transhumant herders in the Xinjiang region, (edited by E. Vanni).

Salty-bromine-iodine waters are also found in mountainous environments such as at Montese, in the Tuscan-Emilian Apennines, near Lake Bracciano, where there is a salty spring called Rio Acqua Salata. In the nineteenth century, specimens of votive bronzes dated between the sixth and fourth centuries B.C. were found, including five representing animals: two bovids, two sheep, and a horse (Miari 2000, 128), whereas even in the early twentieth century, transhumant shepherds took their sheep there to bathe. The water was used to treat gout (Badiali 2013, 323). For the veterinary treatment of horses, we know from modern documentary sources that, at Sant'Angelo in Formis, on Mount Tifata (Caserta, Campania), where the pre-Roman and Roman sanctuary of Diana Tifatina, linked to the hot springs, stood (De Franciscis 1956; Quilici Gigli 2000, 46-48), unique tubs were built with differentiated modes of access for sick beasts, so as not to infect other animals or humans themselves (Novi [1886] 1979, 225). The same modes of use are found in the Euganean spa area, where Maddalena Bassani has collected a whole series of literary testimonies between the sixteenth and eighteenth centuries, testifying to the practice of soaking or, if you will, the practice of 'grazing the waters' for different types of animals suffering from the most varied veterinary diseases

(Bassani 2011, 225-226; Bassani 2012b, 194-196). The written sources not only document in detail the ways by which animals accessed the thermal bath facilities and for what diseases they were treated but also testify to a continuity of occupation from the ancient to the modern period, implying a continuity in the same therapeutic as well as cultic practices (Manselli 1982; Spanu 2008; Giulierini 2010, 130-132; Binazzi 2012; Archetti 2015).

The custom of soaking animals in thermo-mineral waters is still practised in some areas of central-southern Italy, such as in Contursi Terme (Salerno), at the confluence of the Tanagro and Sele rivers, where the ritual of '*vagnatura*' or 'bathing' of the sheep into the thermal water before shearing is repeated every year in June. Shepherds lead the animals on a stretch of the river characterized by carbon-magnesium waters, which can give luster to their fleece and promote the healing of any wounds [Fig. 3]. A winter grazing terminal was undoubtedly to be found in the plain of the lower course of the Sele, while the upper Sele valley constituted a real junction linking the Tyrrhenian areas with the transhumant routes of the Ofanto valley and Apulia and the upper Irpinia and Benevento (Filippone 1993, 21-25). This mobility network, active since Roman times, acquired significant economic value in the Norman era precisely in relation to seasonal pastoralism (Di Muro 2005, 118-119). Geographically distant but structurally significant are also some examples from the steppes of Central Asia and Central Africa.

Indeed, ethnographic surveys conducted on nomadic and semi-nomadic populations of Eurasia have observed how the practice of sheep and goat dipping fits neatly into ordinary resource management within pastoral economies based on transhumant farming.

In Georgia (Chenais *et alii* 2021), as well as in the Tibetan Ordo Plateau (Wang *et alii* 41) or among nomadic pastoralists active between Kazakhstan and China, sheep and goats are immersed twice a year in artificial tanks and canals filled with spring water, sometimes with added pesticides (Kerven, Robinson, Behnke 2021; Ferret 2014). In the Georgian case in particular it was noted that one of the significant concerns of shepherds was precisely the need to keep the treatment constant throughout the year and ensure its repetition along the routes of their movements and, therefore, "the availability of dipping stations along the migration roads" (Chenaise *et alii* 2021, 12) [Fig. 4].

Hot springs and pastoral economies

The therapeutic aspect, of course, does not exhaust the implications of animal presence at sanctuaries and springs, and its productive and economic aspects have been emphasized by several parties (Di Giuseppe 2012; Bassani 2016, 886-887; Bassani 2022; Vanni, Cambi 2015; Vanni 2021). After all, the very practice of cleaning the fleece of sheep with thermal water has primarily productive purposes, namely to make the wool more valuable and easily workable, as well as for the elimination of parasites. Thus, incoming mobility at thermal facilities was undoubtedly dictated by economic reasons for maintaining the animal resource, which in turn ensured the quality and profitability of the collateral production system. This was, for example, found to be the case for the saltwater springs of the Modena area, where the by-products derived from this hydro-geological phenomenon, such as salt, sulfur-rich mud, bi-

tumen, and nitrogen, were used not only for curative purposes but were part of an economic system of integrated animal husbandry practices. The same system seems to have been present at the Bagni di Abano in the Euganean Hills, where sheep were taken to wash their fleece, drink the cold waters, and simultaneously feed at the salt deposits (Bassani 2012b, 195). Salt constitutes an element of fundamental importance for animal nutrition, particularly for sheep and goats. Its regular administration in the animal diet drastically reduces the occurrence of diseases, increases reproductive and dairy capacity (Vanni, Cambi 2015, 111-112 with bibliography), and is an essential element throughout the production cycle of secondary products (Sherratt 1983, Greenfield 2005, 2010; Marciniak 2011). The importance of this food in the management of transhumant, sedentary, and semi-sedentary herds has led to glimpses of a real topographical overlap between the location of salt supply sites, including thermal sites, and the resting places of herds. Salt production and herding found in the thermal waters a point of convergence and electrification for constructing the ancient productive landscape.

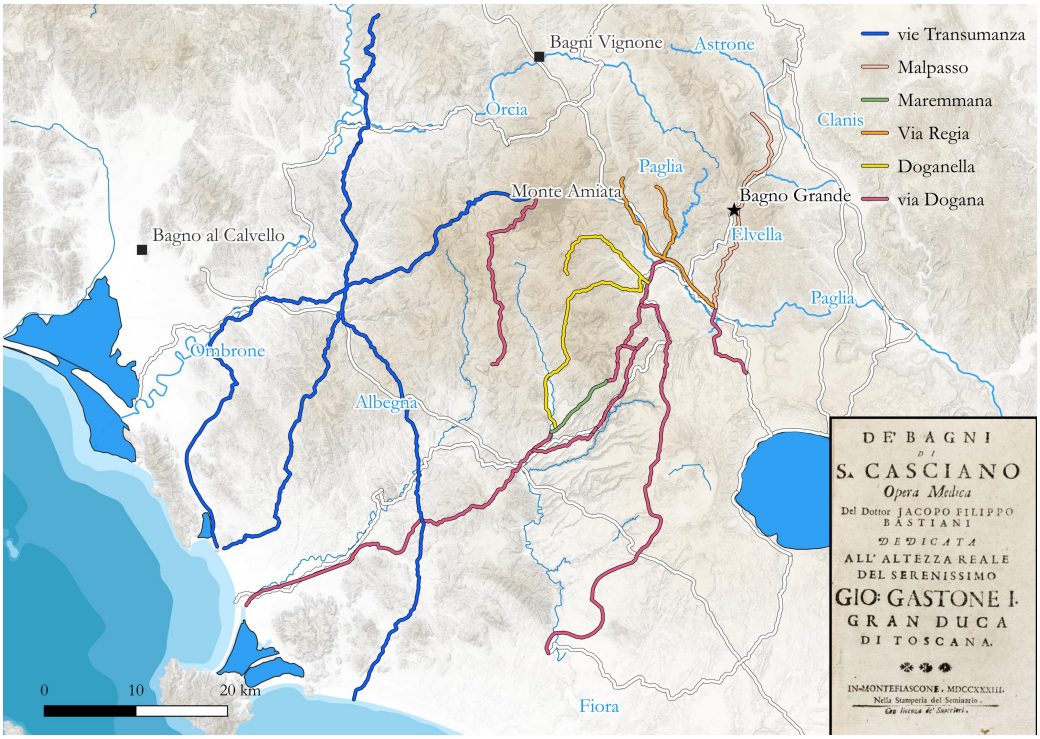
Once again, the use of analogy and comparison, both chronological and spatial, restores to us the complexity of a world that would otherwise remain inaccessible. An adamantine example of this complexity and the diversification and integration of practices, strategies, and exploitation of particular resources is the site of Poiana Slatinei, in Romania, where salt-extraction facilities in the vicinity of saltwater springs are attested from at least the Neolithic period, with cultic manifestations pertaining to the Bronze Age (Weller, Dumitroiai 2002) and with a continuity of use up to contemporary times [Fig. 5]. Ethnographic investigations have not only observed how the local shepherds directly use the saltwater from these springs for cheese production but also that the shelters and pens themselves are directly carved out near the water pools to ensure both the hygiene of the animals and a constant supply of salt for their feeding (Alexianu *et alii* 2011, 12-13). At the site of Hălăbutoaia – Țolici, near a salt spring only 25 km away from that of Poiana and occupied between Neolithic and Chalcolithic times, analyses of phytoliths in the archaeological deposits revealed an essential amount of millet, suggesting that its cultivation was directly related to its use as fuel in pyrotechnic operations for salt extraction (Danu, Delhon, Weller 2022). Millet has also been shown in different contexts and for different periods to have been cultivated primarily as fodder for sheep and goats (Hermes *et alii* 2019; Zhang *et alii* 2021).

Completely changing the geographical context, but not the morphology of the mode of production, the use of hot springs by transhumant, nomadic, and semi-nomadic pastoralists is well attested in Africa. In the Ahmara region of Ethiopia, which is rich in hot springs, about fifty thousand pastoralists with two hundred thousand cattle in tow converge on these highlands during the dry season to take advantage of the water resources and pastures here (Tinsae, Zemede, Sebisibe 2022; Biru, Tessema, Urge 2017, 10; Derso *et alii* 2015, 3). Conversely, in Uganda, at the thermo-mineral springs in the Bunyoro region, salt extraction and mobile farming are again closely linked, but in different ways from the Romanian case: mobile farming ensures the circulation of salt loaves produced from the salty thermal waters to city markets (Moinier 2015, 26). In the village of Kibero, the division of labour is rigidly organized, and

5 | The Poiana Saltinei site (Romania) with modern facilities for dairy production that directly exploits the saline properties of the springs (from Alexianu *et alii* 2011).

while women are responsible for the extraction and production of salt, males provide for its transportation by animals. Pastoralists from different tribes also converge in this water-rich territory, triggering a circuit of inter-regional trade and exchanges of different kinds, attracted by the possibility of treating their animals with sulfur mud or producing medicines by soaking plants in the hot waters (Nabukenya *et alii* 2014, 11). Those who obtain their raw materials from the thermo-mineral springs, such as salt and those who buy products that co-flow here are immersed literally in the same hot pools (Good 1972).

Salt is, however, only one of the many secondary products that can be obtained through the use of sulfurous waters, as in the case of their use in the production cycle of textiles from plant material or derived from them, such as travertine (Cataldi 2005; Bassani 2021, 81). Recently, considerable attention has been paid to sulfur production in antiquity, which was helpful for a whole range of medicinal and religious activities. At Tor Caldara, between Ardea and Anzio, a locality with numerous springs, both hot and cold, rich in sulfur, sulfur mining activities are known throughout the modern age (Bassani 2016). Here, a series of structures dating back to Roman times, along with extensive production of *ollae*, have suggested that this production may have been at the center of an economic system even in ancient times. The presence then of reddish impasto *ollae* from the Final Bronze/Early Iron Age could be evidence of an even earlier production but connected to salt extraction (Di Gennaro 2008). Similar exploitation, certainly dating back to Roman times, can also be seen in the area of Agrigento, Sicily, where numerous phenomena related to secondary volcanism have as their manifestation the presence of thermal waters or simply waters that contain sulfur, among other minerals. Here in the vicinity of sulfur springs are attested ancient basins, canalizations, and specific ceramic productions for the production of medicaments, such as Lykion (Taborelli 2014), connected to

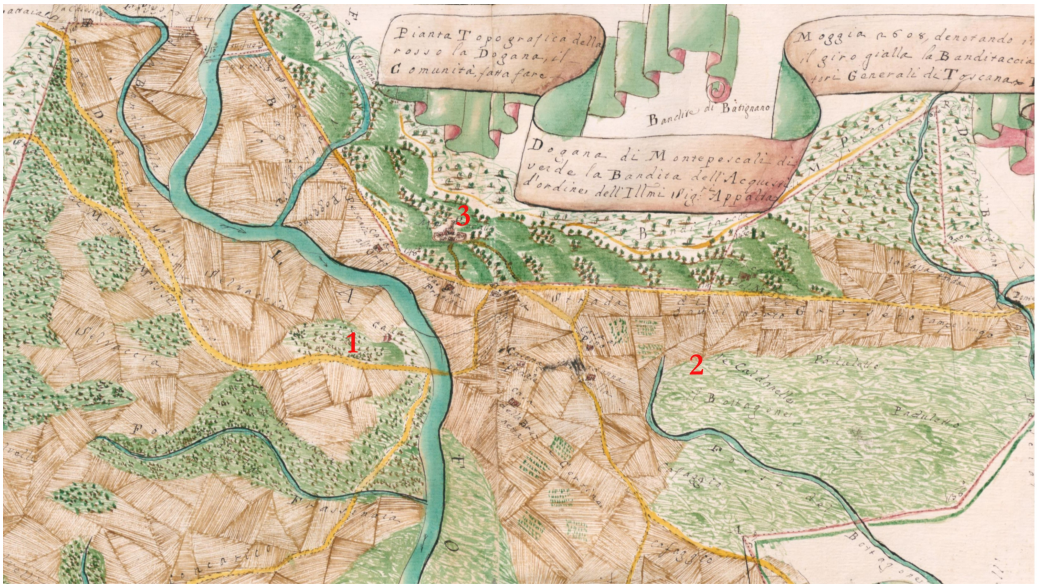


6 | Some Medieval thermal sites mentioned in the text and the medical treatise on San Casciano dei Bagni by Jacopo Filippo Bastiani (bottom right).

the sulfur cycle and the collection of bitumen (Zambito 2022), still practiced throughout the medieval and modern ages.

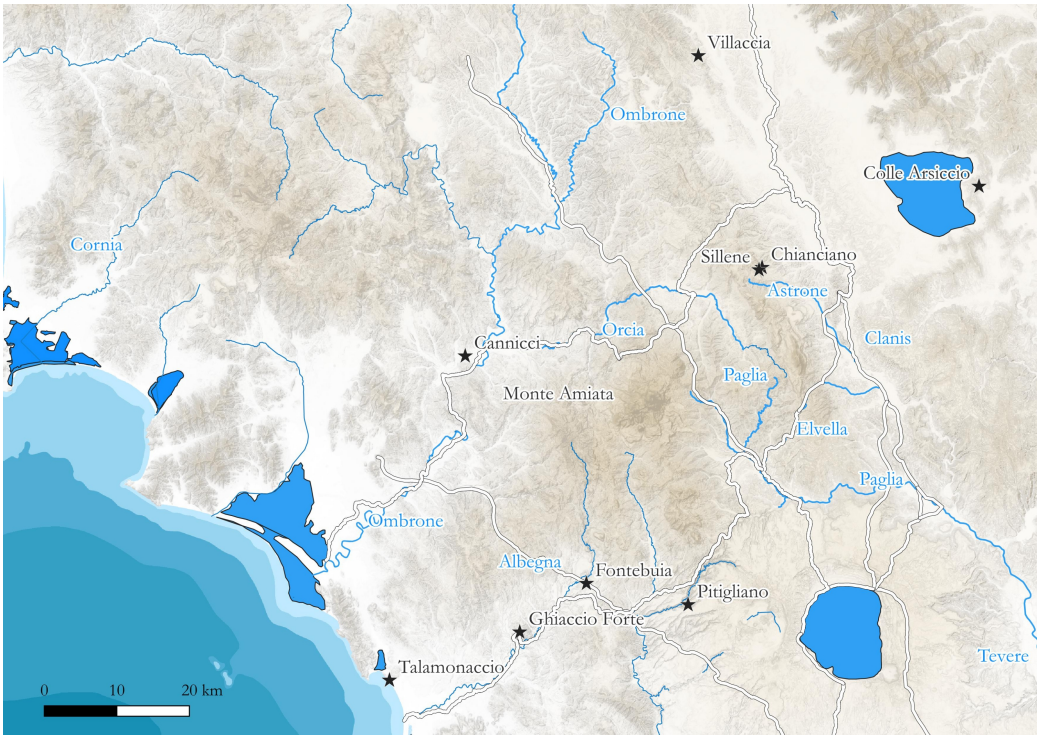
Mobility as a condition of existence and continuity of use of thermo-mineral springs in Etruria

The understanding of the phenomenon related to hot springs should be placed within the more complex framework of a series of strategies and practices related to mobility phenomena. As we have argued elsewhere (Vanni 2023), mobility constitutes a crucial element in activating and maintaining the use of a cultic site connected to a particular resource, such as thermal water. When viewed as a condition of existence, it is even more decisive in those territories where the fabric of the population tends to structure itself in a discontinuous manner, the so-called broad-mesh peopling, or for those sites located in ecologically and socio-economically marginal spaces. In such contexts, the instability of the social groups in charge of ensuring the usability and functionality of a place of worship may find in some mobile segments of the communities occupying a territory a guarantee of survival.



7 | The Bagno al Calvello site (No. 2) in a historical map (1745) illustrating the Dogana di Montepescali (No. 1) with the *calla* site (No. 1).

However, mobility also triggers other processes directly affecting how animals are managed. Although, for example, the sheep is an animal that is well adapted to travelling long distances and undemanding when it comes to grazing, it is at the same time also very fragile. Transhumant sheep, in particular, are subjected to the stress of very long and continuous movements, and seem to be the most affected by diseases and epizootics (Cristoferi 2019, 44-46). The possibility of contracting diseases and therefore the need to prevent or treat them, in connection with the ecology of the environments frequented by the animals and the mobile practices, is evident in the agricultural and zootechnical treatises of the 18th and 19th centuries (Dandolo 1804, 123; De Crescenzi 1805, III, chapters LXIX-LXXV, LXXIII; Doriglioni 1785, 6). This knowledge empirically rises to a real system of management and prevention. Certain diseases such as marchia or watery cachexia, for example, affect sheep that frequent wet pastures or morning dew, environmental factors that are very common along the coasts of central Tyrrhenian Italy and particularly in Etruria (Barontini 1913, 22-23; Tessier 1812, 3, 159,161; Salvagnoli-Marchetti 1856). The practice of transhumant mobility and its related activities, such as *calla* (counting animals for tax purposes) or selling in livestock markets, involved the meeting, joining, and recomposition of several flocks at different times and seasons of the year, promoting the development of epizootics and increasing the risks of contracting diseases. This risk seems to be alluded to in the news of the refusal by transhumant shepherds to go for the Paganico *calla* in 1405 (ASS, General Council, Deliberations, 202, cc. 37v-38r September 18, 1405), the seizure in 1420 by the officers of the Paschi, of several sick sheep



8 | Attestations of animal votive offerings connected to mineral and thermo-mineral springs in Etruria between the 7th and 1st centuries BC (source: Geoscopio).

which could not be sold in the square of Grosseto, or the prohibition, in the statute of Gavorrano in 1465, of grazing to those beasts that had contracted diseases (Cristoferi 2019, 45, no. 177), so proper and systematic management of these issues significantly affected the income of the breeding economies.

In Etruria, the frequentation of thermo-mineral springs in Medieval and Modern times for the treatment of epizootics and diseases caused by contact with animals, especially scabies, from sites already frequented in earlier times, is documented in numerous written sources (Boisseuil 2002, 321-389; Chellini 2002, 73, 119, 127, 135, 135, 139, 145, 151, 162, 166, 171, 180). These healthy activities, as we have tried to suggest, are never divorced from productive and economic practices. This structural complementarity of financial systems, let us call them pre-capitalist, has not yet undergone compartmentalisation and rigid fragmentation into discrete segments typical of modernity, so that even ancient spaces are mostly hybrid, shared places frequented simultaneously by different actors, who may be involved simultaneously in closely related activities. The hybridity of practices and spaces does not mean the absence of logic. In San Casciano dei Bagni, for example, we know from the description of the physician Jacopo Filippo Bastiani [Fig. 6], that in the mid-18th century, numerous hot springs and con-

nected pools were frequently used for numerous activities beyond those that were properly medical. In particular, from the Bagno Grande spring, which was already rich in archaeological finds at that time (Mariotti, Tabolli 2021; Mariotti, Salvi, Tabolli 2023), Bastiani again signals how "All this water flows for its channels in the adjacent ditch, and provides the comfort of three large piles, in two of which the clothes are washed, and in one of which the sheep and other animals that have mange are bathed", and also "It gives motion to the water to a nearby hollow, and forms together with the water of the other baths the Fiumicello Elvella, from which three Mills are made grinding, and motion is given to another Gualchiera in the distance of a mile", a sign once again of the extreme economic versatility linked to the use of thermal waters, of the hybrid character of the spaces but also of a precise desire to organize them for differentiated practices (Bastiani 1733, 25; Morelli 2021, 95-96). As proof of the polyfunctionality of the health waters and the structures connected to them, we can cite the example of Mezzomiglio (Chianciano Terme), once again in the territory of Chiusi, where in the late antique phases of the pool built to harness the spring and use it for therapeutic purposes, we can trace the clear signs of a re-functionalization for breeding purposes (Soren 2006, 199; Mackinnon 2009, 196; in this issue, see the article by M. Pacifici).

The desire to rationalize spaces and the dual mechanism of inclusion/exclusion and interpenetration/separation is clearly visible once again in official acts. Also, in San Casciano dei Bagni, a notarial deed of 1485 enjoined that "nulla persona (...) possit aliquo modo neque pertransitum firmare, tenere apud balnea et in confinibus balneorum aliquam quantitatem pecorum" (A.S.S. Notarile antecosimiano 784, f.14). Not far away, Bagno Vignoni, located on the slopes of Monte Amiata and at the meeting of the Orcia corridor and the Via Francigena, was also explicitly forbidden to use the baths for animal washing (Boisseuil 2002, p. 14; Tintinnano 1297, dist. IV, rub. XXIIII). Interdictions to animal bathing can be found in the mid-15th century in the statute of the community of Montepescali (1427-1428), in the heart of the Maremma plain, in which the immersion of animals in the pools of the Bagno al Calvello or Caldanelle [Fig. 7], located close to Lake Prile, was prohibited so that, at the same time, its use for watering grazing animals was guaranteed (Imberciadori 1946, 217).

The small rise overlooking these springs and wetlands, called Poggio Calvello, experienced a protohistoric occupation that can be framed in the Early Iron Age This was of a seasonal nature, undoubtedly related to the exploitation of the lagoon's resources, such as salt and pastures (Aranguren 1985-1986), and of the same nature as other coeval neighbouring settlements such as Poggio Diaccialone and Colle Macinaie (Bergonzoni 1973) and early medieval occupation. Not far away, on the road between Montepescali and Grosseto, near another thermo-mineral spring at Poggetti Vecchi, we know from antiquarian evidence that transhumant shepherds, still in the mid-18th century, used to "wash their sheep for cutaneous ills" (Boldrini 1761, 154) in tubs from Roman times, yet another proof of that continuity of use in the discontinuity of practices (Curri 1978, 200).

All these news and prescriptions indeed allude to a widespread practice and report on the desire to manage collective spaces shared (and divided) between productive activities and different subjects, also suggesting the massive presence of animals, particularly sheep, which can only be linked to the presence of transhumant flocks. These came, in the case of San Casciano dei Bagni, Bagno Vignoni and Paganico, from the Casentino and the Umbria-Marches Apennines (Massaini 2005), while in the case of Montepescali and Gavorrano from Garfagnana, reaching the alluvial plains and the mid-Tyrrhenian wetlands (Piccinni 1989, 205; Landi, Calzolai 2015, 102). The overlap between the places deputed to the *calla* of sheep and those of Dogana, for fiscal counting and flow management, and the thermomineral stations, as at Petriolo (Vanni *et alii* 2023, 224-228), at Montepescali, and at Paganico (Cristoferi 2021, 49-50), is not a mere coincidence. Furthermore the continuity of their frequentation in ancient times, as in the case of San Casciano, as well as the insistence of the sheep-tracks and ancient road system along the springs, shows the long-term resilience of a vast and complex economic and ecological system.

Beyond economy and the sacred

There is no reason not to think that these "landscapes of complexities", composed of ecological elements (healing springs, pastures, rivers, etc.), manifestations of worship, therapeutic practices (shrines, lights, votive offerings, etc.), and socio-economic structures, closely interrelated, did not have their own and peculiar configuration even in Antiquity. So why, for example, are the manifestations of worship materially expressed by animal *ex voto* and routinely used to index how sacred spaces were frequented and the people involved only background noise in a sea of complexity? Let's look at the Etruscan and Roman worlds. Etruria records a relatively small amount of animal *ex voto*, whether anatomical or depicting the animal in its entirety, except for a few exceptional finds, such as Lake of the Idols, on the Falterona (Arezzo) or in general for the Trasimeno and Bolsena Lake areas (Arbeid 2010). Even rarer appear the attestations in connection with sanctuaries and thermo-mineral springs. How, then, can this *argumentum (quasi) ex silentio* be interpreted? Having reached this point, we can only speculate. It is, in my opinion, indisputable that places of worship at thermo-mineral springs were frequented, in equal measure, by both humans and animals and that the latter were subject to a process of 'humanisation' within a ritual practice precisely because they were non-human actors. This praxis, which involved the dissolution of a vow for healing, is quite comparable in procedures and symbolic manifestations to that of human actors, who are ultimately the ritual substitutes for animals.

However the ritual and therapeutic aspect does not, as we have seen, exhaust the dynamics of the use and frequentation of thermo-mineral resources. The economic aspect is undoubtedly the dominant characteristic of the system, which involves, in each case, mobility, whether continuous, occasional, periodic or seasonal. In short, occupying and using worship spaces means doing so in various ways, not necessarily religious in character. This could be one possible explanation. On the other hand, we need to point out how the need to regulate, divide, and prohibit collective spaces of use, a dynamic well operating, as we have had the opportuni-

ty to see, in San Casciano, produces, at different levels, a series of privileges of access to the structures and procedures of exclusion such as to make some archaeologically 'invisible' and overrepresent others. A final aspect might relate to communal forms of economic and cult management, in which multiple entities might have joined together to dedicate a single offering, in accordance with the relatively high costs of producing it, as we know to have happened to the *sodales oviari* (group of shepherds) of the Betica, active along the entire course of the Guadalquivir, in Roman times (Gomez Pantoja 2001, 198-201).

Even amidst the disorganized representativeness of the data, we must highlight how animal devotion during Etruscan and late republican times was largely concentrated, spreading in a widespread and uniform manner, primarily in the inner Tiberine and northern part of southern Etruria. This phenomenon notably impacts the region between Perugia, Cortona, and Chiusi, centered around Lake Trasimeno and the area between Orvieto and Vulci, with Lake Bolsena at its core. Conversely, to the south, this phenomenon appears not to extend beyond the Albegna corridor, except for the singular discovery of bronze cattle from the Ara della Regina in Tarquinia (Arbeid 2010, 23-24).

When we specifically consider travel corridors and macro-areas, we observe this phenomenon tending to structure itself between the river courses of the Orcia and Ombrone rivers to the north and the south, along the Osa and Albegna rivers, eventually reaching the interior and influencing certain areas of the Apennines. These animal votive offerings, particularly those made of bronze, appear to circulate, move, and percolate along and across border spaces—the ecological and productive interfaces situated between different landscapes and political entities (between Volterra, Chiusi, and Roselle on one hand, and Orvieto, Vulci, and Roselle on the other).

Thus, if there exists a historical (and historiographical) distinction between the 'two Etruriae', northern and southern (Camporeale 2005), or rather between multiple Etruriae (Milletti *et alii* 2021), with varying times and velocities, this differentiation likely stems from their distinct ecological and productive vocations. These differences result from a combination of well-defined choices regarding resource exploitation strategies, the implementation of practices dating back at least to the Final Bronze Age, and the ecological composition of landscapes, which have long-term consequences even into the Roman age (Vaccaro 2008, 244-245).

An adequate understanding of these complex structures, thickened around sacred spaces and thermal springs, must use a necessarily territorial perspective to place places, rituals, and human and non-human subjects within the modes of production and micro-ecologies of which they are the expression and premise. One must be able to de-ritualize space and de-situate the material manifestations of worship to bring out the 'landscapes of complexities' in which (and with which) humans, things, animals, and systemic configurations (symbolic, social, economic) are 'trapped' or 'intertwined' – or entangled? (Hodder 2012, 94).

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Abstract

This contribution aims to analyse the complex functional and symbolic links between the presence of thermo-mineral springs, places of worship connected to them, and mobile livestock farming economies in a particular border area of Etruria. These three elements constitute an integrated system of practices and a specific mode of production, the continuities and discontinuities of which can be traced over the long term. By analyzing various ancient documentary sources and making extensive use of ethnography, this

study will highlight the entanglements specific to this sacral, thermal, and economic system within the ancient landscape.

keywords | Ancient Etruria; Healing Sanctuaries; Pastoralism; Anthropology; Thermalism.

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