

la rivista di **engramma**
luglio **2024**

214

**Archaeology
of Thermalism.
New studies
on healing waters**

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Archaeology of Thermalism. New studies on healing waters

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La Rivista di Engramma

a peer-reviewed journal

214 luglio 2024

www.egramma.it

sede legale

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redazione

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edizioni**egramma**

ISBN carta 979-12-55650-42-3

ISBN digitale 979-12-55650-43-0

ISSN 2974-5535

finito di stampare gennaio 2025

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Etruscan Parallels for 'Modern' Medicine?

Jean MacIntosh Turfa

Archaeological, literary and circumstantial evidence of the first millennium BC shows that Etruscan civilization should be credited with distinct advances in many fields, including urbanization, agronomy and technology, and perhaps even pharmacology. At San Casciano dei Bagni the votive sculptures and other objects deposited in the Bagno Grande demonstrate some Etruscan parallels to Roman and modern perceptions of medicine. Some of the attitudes and understanding expressed in the ancient votive contexts betray interests similar to those of modern society. The term “healing cults” is sometimes questioned when it is applied to ancient Italic religion, but the presence of hot springs as well as anatomical votive models surely illustrates the context of health and healing for perhaps 200 or more sites (Turfa 2006). Offerings and inscriptions make it clear that Italic worshippers spent some time here in hopes of healing for physical problems; rich votive deposits demonstrate successful cures in many cases.

With the amazing finds from San Casciano dei Bagni in mind, I offer a few examples from my research into Etruscan health, medicine and worship, to illustrate some seemingly “modern” aspects of the healing cults of the first millennium BC. These include examples of ancient perceptions of particular phenomena, of pathology and environmental influence, and of specific modes of diagnosis and response to medical, occupational or environmental issues.

The juncture of health concerns and daily life can be illustrated by such things as “foot trouble”, or the use of dentures. Metallurgy benefited from technological development but this also brought on industrial pollution. The association of human health with environmental factors such as weather would always have been at the fore of perception of the human condition. As society confronted disease and landscape-based treatments like thermal spas, specialized knowledge burgeoned in fields like gynecology and obstetrics, and even surgery.

Hazards for the Fashionable: The Capys Phenomenon?

Fashion and pop culture today often impinge (whether for good or ill) on health and hygiene, and we see forerunners of the phenomenon in stray remarks preserved by the Greek and Latin authors.

In Antiquity, anomalies of anatomy in animals or humans were to be read as messages from the gods. The Etruscan glosses, a collection of terms noted by Greek and Latin authors, in-

clude some Etruscan versions of the names of birds or beasts. These words were passed down because their subjects were considered vital to the practice of divination.

Some glosses are actually Greek or Latin, not Etruscan, but others are quite genuine. One such curiosity is the word *capys*: “falcon”. It was preserved in the poetry of Virgil (*Aeneid* 10.145) and noted by the commentator Servius:

constat tamen eam a Tuscis conditam de viso falconis augurio, qui Tusca lingua capys dicitur: unde est Capua nominata. Tuscos autem aliquando omnem Italiam subiugasse manifestum est. alii a Tuscis quidem retentam et prius Vulturum vocatam: Tuscos a Samnitibus exactos Capuam vocasse ob hoc quod hanc quidam Falco condidisset, cui pollices pedum curvi fuerunt quem ad modum falcones aves habent, quos viros Tusci capyas vocarunt.

After presenting some fantastic word-derivations, Servius noted that “Etruscans called *capys* men who had the thumbs of their feet curved, in the manner of falcon birds” (Bonfante, Bonfante 2002, 188 no. 821; Pallottino 1968, 103 no. 821; Cordano 2012, 457-461; Minoja 2012, 463-482). *Capys* is thus the Etruscan term for a man with malformed feet that look like a falcon’s curving talons; they are still depicted this way in modern texts on pathological anatomy. No ancient models represent the actual deformity although the condition must have been common knowledge to have inspired the Etruscan terminology.

In regions where people go barefoot, deformities of this type are caused by the use of improper shoes. The striking array of beautiful shoes and boots worn by Etruscan men and women was well known to ancient observers, and is still evident in surviving works of art. The famous Etruscan *tyrrhenika sandalia* – wooden platform – sole sandals with bronze-hinged insteps and iron hobnails – were probably the most hazardous design, yet both genuine versions and knock-offs were popular in Macedonia and throughout Italy (Touloupa 1973; Turfa 2005, 163-165 no. 143 from Vulci). The large quantities of terracotta and bronze model feet in Etruscan and Italic votive deposits from the 4th through 1st centuries BC might indicate a familiarity in those regions with diagnosis and possibly treatment of foot conditions such as this.

Anatomical votive models, intended as thank-offerings after healing, very rarely deliberately depict pathological conditions but instead commemorate healing already achieved. Several sanctuaries have furnished examples of feet, however, that were modeled with bunions, another result of wearing shoes that do not fit correctly (for instance Turfa 2005, 247 no. 275, 3rd-2nd century BC). In the case of bunions, though, we cannot prove that donors intended the models to allude to their own condition: since the molds for the feet were often drawn from living humans many of whom probably lived with bunions and took them for granted.

Dental Appliances: More Fashion Than Medicine

Another fashion that touches on medical conditions is that of women wearing gold-band dental appliances to replace lost or extracted front teeth. It foreshadows traditions in modern dentistry such as “Grillz” popular with rock stars and sports teams and shows that Etruscan

social phenomena could affect health and even drive the development of technology, in this case, metallurgy. Gold bands anchoring replacement front teeth were rare but over 21 examples are known, from the 7th century to late 1st century BC (Turfa, Becker 2019). They were made by goldsmiths, not dentists, however. Virtually all known examples belonged to women and seem to be associated with fashion rather than medicine. I have suggested that, like the prostheses now made for African immigrants to Europe and the UK, they were intended to restore dentition that had been ritually excised or knocked out in the wearer's homeland (Becker, Turfa 2017, 101-110, 134-137). Perhaps some of the prostheses found in Etruscan tombs were worn by wives who had been raised in cultures other than Etruscan, where customs of ritual tooth eversion were practiced for puberty, mourning or other events. In central Italy the tradition of gold-band appliances stimulated metallurgy: the bands are of much purer gold than contemporary jewelry or other objects – the metal had to be softer to be fitted in the woman's mouth. Two examples in the World Museum, Liverpool have been analyzed and found to be nearly 98-99% pure gold – too pure for regular jewelry, and difficult to refine to such a high standard (Becker, Turfa 2017, 210-223 nos. 13-14; Turfa, Muskett 2017, 152-156 nos. J29-J30). The use of gold, of course, would have helped to avoid infection or irritation of the gums, although it may not have been explained in a medical context.

Divination, Health and Safety

The practice of divination is also linked to concepts of health and healing: suffering physically was interpreted as a message from the gods, and the treatment or removal of the affliction was a sign of a suppliant's return to the gods' good graces. Haruspicy, examination of the liver of sacrificed sheep, was another quintessential Etruscan activity. In some instances it offered correct – and useful – predictions about the health of individuals and communities (Turfa, Gettys 2009). There is a good reason why haruspicy worked – scrutinizing the entrails of a slaughtered lamb really can indicate the future health of humans in that area. The parasitic liver fluke, *Fasciola hepatica*, endemic in much of the world, infects sheep by tunneling through their alimentary tract to reach the liver. An infected lamb will for a time look clean and healthy externally, but internally its liver is filled with lesions. Humans who eat the lamb, or eat contaminated plants from infected areas will take several weeks longer to sicken because our upright bipedal posture means the flukes have a longer trip to reach a *human* liver.

Adrian Harrison and E.M. Bartel (Harrison, Bartel 2006) have noted that vermifuges such as chamomile and wormwood are named in some Etruscan literary glosses. Etruria was famous in antiquity as a source of drugs and healing herbs, noted by Theophrastus and Aeschylus. Many of these plants are studied today as potential *materia medica*, including feverfew, gentian, henbane, pimpernel, thyme, valerian and more. The fact that specific Etruscan names for *materia medica* are preserved in Greek or Latin texts may attest to a prior, Etruscan familiarity and formal organization in the use of such knowledge for healing. And the sudden abandonment of habitation sites in some cases might be the result of this sort of divination, as implied by Vitruvius (Vitr. 1.4.9), for instance:

Maiores enim pecoribus immolatis, quae pascebantur in is locis, quibus aut oppida aut castra stativa constituebantur, inspiciebant iocinera, et si erant livida et vitiosa primo alia immolabant dubitantes utrum morbo an pabuli vitio laesa essent. Cum pluribus experti erant et probaverant integram et solidam naturam iocinerum ex aqua et pabulo, ibi constituebant munitiones; si autem vitiosa inveniebant, iudicio transferebant idem in humanis corporibus pestilentem futuram nascentem in his locis aquae cibique copiam, et ita transmigrabant et mutabant regiones quaerentes omnibus rebus salubritatem.

Our ancestors used to sacrifice some sheep pastured in the area where they wanted to establish towns or military camps, and examine their livers. If these were discolored and defective, first they would sacrifice more sheep, wondering whether the original victims might have been ravaged by disease or spoiled feed. Once they had scrutinized several victims and decided that the local water and fodder had produced perfect, solid livers, there they would lay their fortifications; if, on the other hand, they discovered the livers to be defective, they would decide that the supply of food and water produced in such a locale would prove just as pernicious to human bodies. Thus they moved onward, changing regions in the search for an environment healthful in every respect (Translation, Rowland, Howe 1999, 27).

The miners' village at Lago dell'Accesa, near Massa Marittima, was abruptly abandoned, yet residents had time to salvage valuable possessions (Harrison, Cattani, Turfa 2009; Camporeale 1997; Camporeale, Giuntoli 2000). There is clear evidence of pollution from the metals industry that operated on-site from the late eighth into the sixth century BC, with mines and smelting nearby. Groundwater during storms actually flushed slag, heavy metals and sulfur compounds over oil or wine presses and house thresholds. The region is today receiving mitigation for Etruscan archaic industrial pollution.

A Rare Document

Environmental effects also figure in the *Brontoscopic Calendar*, an Etruscan document preserved only in (ancient) translation (Turfa 2012). A set of omens linked to the occurrence of thunder in central Italy were originally recorded in Etruscan and later translated into Latin by *Publius Nigidius Figulus*, a friend of *Cicero*. His work survives in a Byzantine Greek translation by John the Lydian (6th century AD). Omens are presented in calendar order, each day providing one or more predictions of good or bad situations that are likely to occur if thunder is heard on that date. Many entries deal with agriculture, foodstuffs, famine, or war. Some others hint at class struggles in the cities: I have suggested that the document was recorded in the early 7th century BC, during the era of the founding of the cities in central Italy. This was just when some situations, like that listed at August 19, would have been possible: "If in any way it should thunder, the women and the slaves will dare to carry out assassinations". But most entries are quite mundane: "wet weather and ruin of the grain", "plentiful fodder for the flocks", "a plenty of fish" etc.

Just once, at December 29, thunder is said to signify "the most healthful leanness for bodies" (Turfa 2012, 182 and fig. 3). While this sounds like the modern, athletic ideal, one very distinctive votive form of the late fourth century and later seems to depict extremely attenuated

figurines in bronze, with drawn out bodies and normal heads and feet. Without texts we cannot be certain of interpretation, however.

Many dates offer omens on infectious diseases, ranging from “plague, but not life-threatening” to skin-lesions (July 27, Oct 22, Dec 5, Feb 18, 26). This was not bubonic plague, but serious diseases like Brucellosis have been identified in ancient Italy and could account for “recurring fevers” and the like (see Turfa 2012, 164-203.) Another zoonosis appears at February 23: “if it thunders, it threatens deformity for men, but destruction for birds”. This is the time of year when mumps often occurs in human populations, and a related paramyxovirus, lethal Newcastle disease infects birds (see Hippocratic *Epidemics* 1.1). At October 26, “spotted diseases” might describe cutaneous anthrax, in a population heavily invested in sheep-herding. Other skin problems also may have been noted – we might expect these to be treated with certain kinds of thermal waters.

The linking of health with electrical storms is of interest in the modern field of Biometeorology. For instance, the calendar notes “good deliveries for women” at June 2 and February 11, where the low pressure before a thunder-storm might have an effect on inception of labor. Electrical storms have also been associated with asthmatic attacks. Mesopotamian omen literature, from which the Etruscan text was in part adapted, does have some links between weather and health, but the Etruscan document is never a slavish copy and is always tied to conditions of life in Italy. The discovery of a carefully placed bronze “thunderbolt” talisman in the Bagno Grande deposit must also reflect the association of weather and environment with human health [Fig. 1].

The Widespread Tradition of Anatomical Votive Models

The anatomical votive models in terracotta or bronze suggest ways of approaching ailments, especially those afflicting specific categories of people:

While Greeks did produce votive models depicting human organs, Etruscan and Italic sanctuaries had a greater variety of such objects. Greek temple inventories do mention models of some internal organs, in valuable materials, but silver objects, for instance, are seldom preserved in the archaeological record, and it appears, from the high quantities of various model types, that Italy saw a much greater focus on internal organs than did other cultures.

The design of some rationalized anatomical models, especially internal organs, often uteri or polyvisceral plaques depicting several different organs, often shows specific styles that can be attributed to regional artistic preferences. The cities of Caere, Tarquinia, Veii and Vulci in particular seem to have produced distinctive regional styles, perhaps associated with individual coroplastic workshops (see Turfa 2004 *passim*). The organs are usually recognizable, but never at the level of modern medical illustrations. While this level of anatomical understanding could have been developed from treatment of combat injuries, such interest in male and female organs indicates, for the many persons visiting healing sanctuaries, genuine familiarity with medical practice.



1 | Bronze model thunderbolt, San Casciano Bagno Grande, (photo by C. Petrini; courtesy of ABAP-SI and Municipality of San Casciano dei Bagni).



2 | Bronze polyvisceral plaque and display base, San Casciano Bagno Grande, (photo by C. Petrini; courtesy of ABAP-SI and Municipality of San Casciano dei Bagni).

New anatomical model types are still being discovered. One very odd design, recovered in 2012 by the Guardia di Finanza, was produced by a workshop supplying multiple votive partial-heads for a sanctuary in the vicinity of *Lanuvium*: neck and lower jaw are rendered without the facial features or the crown of the head (Attenni 2013; Attenni, Ghini 2016). This is so unusual that we surely must assume that the type represents healing vows for some distinctive yet uncommon affliction of the throat or lower jaw. Such extreme focus on one anatomical feature implies a shared understanding of anatomy and physiology, presumably cultivated in or very near to the Pantanacci sanctuary.

Most polyviscerals and internal organs (except uteri) were made in terracotta, but two polyvisceral plaques in bronze excavated from the Bagno Grande at San Casciano show a later, modified version of the type [Fig. 2]. They further illustrate a close association of votive religion with medical practice of some sort (Tabolli 2023, 239-244). At least one plaque was probably kept accessible many years after its manufacture in the late 2nd century BC, and re-set in a bronze base for further display. When the votives were buried, the two plaques were placed in the *vasca* with figures of swaddled infants (at sites all over central Italy, obvious models of medical interest (like excised organs) were handled in the same way as simpler sculptures like swaddled babies or clothed men and women).

Gynecological and Obstetric Specialties

Women as a social group are cited by the *Brontoscopic Calendar*, and tantalizing references to gynecological or obstetric specialties are occasionally mentioned in ancient sources. One reference is in the text of “Metrodora,” a female doctor of the Byzantine era (6th century AD): an “Etruscan wax” to be used to aid conception (Turfa 2016, 799).

Fertility, fecundity, parturition, and perhaps selection of the sex of an infant, were represented in special types of votive uteri, such as those x-rayed at *Lucus Feroniae* (Baggieri 1999, 99-100 figs. 21, 22, 24). Some are hollow and contain one or more clay pellets. In analogy with prehistoric Greek ethnographic parallels (Talalay 1993, 40-44) worshippers may have participated in the making of the models and intended the pellets as symbols of the infant to be conceived. Note that the wished-for product, a swaddled infant, is familiar again today, as the tradition of swaddling is being revived in modern pediatrics.

Some models offered at Gravisca in the territory of Tarquinia have stylized fibroid tumors. Other terracotta uteri offered at various sanctuaries were made *bicorporate* or *bicornis* – we cannot know if these models were intended to show pathological or unusual conditions, but they and a few other curiosities must indicate some specialized knowledge of human anatomy. Only primates have this type of uterus, and the archaic Roman *Lex regia de mortuo inferendo* offers a means of understanding the importance of such models: this law, believed to derive from an Etruscan predecessor, required the attempt at retrieval of an infant if a mother died in childbirth or while pregnant. The special features of the models are greatly rationalized and stylized, but surely a few artists saw such conditions or heard them described in detail (Turfa 1994).



3 | Votive model uterus with part of urinary tract modeled by hand. Terracotta, 3rd-1st century BC, Manchester Museum, inv. 35152. Drawing by Paul Butler.

In the Manchester Museum (UK) is a terracotta model of Veientine type drawn from a worn mold for an oval uterus with wavy ridges that indicate third stage labor contractions. It was finished with hand-modeled ureters [Fig. 3] (Turfa 1994, 229, fig. 20.5; Turfa 2016, 799-803). Such carefully worked additions must have been intended to indicate specialized knowledge – and treatment – of the female urinary tract (presumably for complications due to childbirth). It probably took weeks to produce such models due to preparation of the clay, molding and tooling, firing, cooling and finishing. And for the process to begin, someone had to order the model, and describe the specialized anatomical geography.

Matthias Recke (2013, 1078-1079, figs. 59.15-16) has called our attention to rare anatomical models in terracotta that not only display the exposed viscera, but seem to indicate the presence of sutures along the “incision” – as if we are looking at a medical teaching model, as in an example in Ingolstadt (Deutsches Medizinhistorisches Museum). This issue has been reopened with the discovery of the surgical instrument, a gouge, [Fig. 4] carefully offered at San



Placca polifunzionale in bronzo
San Casciano dei Bagni, vasca sacra del Bagno Grande
I secolo d.C.

Spazzolino chirurgico riprodotto in bronzo
San Casciano dei Bagni, vasca sacra del Bagno Grande
I secolo d.C.

Spina polifunzionale riprodotta
San Casciano dei Bagni, vasca sacra del Bagno Grande
I secolo d.C.

Spina polifunzionale riprodotta
San Casciano dei Bagni, vasca sacra del Bagno Grande
I secolo d.C.

Placca polifunzionale in bronzo con dodici a forare
San Casciano dei Bagni, vasca sacra del Bagno Grande
I secolo d.C.

Spina polifunzionale riprodotta
San Casciano dei Bagni, vasca sacra del Bagno Grande
I secolo d.C.

Autunno: Repubblica Romana (prima fase)
Autunno: Repubblica Romana (seconda fase)

Autunno: Repubblica Romana (terza fase)
Autunno: Repubblica Romana (quarta fase)

4 | Bronze surgical gouge, San Casciano Bagno Grande, (photo by C. Petrini; courtesy of ABAP-SI and Municipality of San Casciano dei Bagni).

Casciano in the same location as votive sculptures etc., an even surer token of knowledge of the body on display.

The unexpected finds at San Casciano are beginning to reveal attitudes that more closely resemble a modern appreciation of medical practice, linking religious observance (attested by votive cult and inscriptions) with basic medical techniques such as observation (votive figures that display pathological conditions) and treatment procedures (like surgery, attested by offerings of instruments). The rare portrayal of deformity, in the already-famous bronze statuette of a youth (*L. Marcius Grabillo*) with attenuated limbs accentuated by his pose (Bagno Grande, inv. Z130_1, Papini 2023, 127-129), is another aspect of a different atmosphere or character in this cult – perhaps the difference is due to the hot springs that characterize it. The deliberate display of human anatomical subjects, whether anomalous or generalized (e.g. uterine variations or simplified hands, feet, etc.), further attests to a clientele and officials who are well aware of the medicine of their day and its possibilities.

It appears, from evidence such as haruspicy and brontoscopy that worshippers in central Italy were always strongly aware of the environmental factors surrounding them. Society also had an effect, stimulating medical specialization by observing specific groups, for instance women, as we see in the hundreds of models that express knowledge of internal anatomy and the variety of the human body. The archaeological evidence when linked to ancient literary data and interpreted with reference to modern medical literature will show parallels to Biometeorology, perceptions of industrial pollution, surgical practice and special fields for treatment in fields such as pharmacology, gynecology and obstetrics. The site at San Casciano promises more such surprises.

Bibliographical References

Roman Literary Sources

Servius

Maurus Servius Honoratus, *In Vergilii carmina commentarii. Servii Grammatici qui feruntur in Vergilii carmina commentarii; recensuerunt Georgius Thilo et Hermannus Hagen*, Georgius Thilo, Leipzig, B.G. Teubner 1881.

Vitruvius

Vitruvius, *De architectura*, ed. by I.D. Rowland, T.N. Howe, Cambridge 1999.

References

Atteni 2013

L. Atteni, *The Pantanacci Votive Deposit: New Anatomical Discoveries*, "Etruscan News" 15 (Winter 2013) 1, 6.

Atteni, Ghini 2016

L. Atteni, G. Ghini, *La stipe votiva in località Pantanacci (Lanuvio-Genzano di Roma, Roma)*, in F. Zevi

(ed.), *L'archeologia del sacro e l'archeologia del culto. Sabratha, Ebla, Ardea, Lanuvio*, Roma 2016, 237-274.

Baggieri 1999

G. Baggieri, *Archeologia, Religione e Medicina*, in G. Baggieri (ed.), *L'antica anatomia nell'arte dei donaria*, Roma 1999, 80-103.

Becker, Turfa 2017

M.J. Becker, J.M. Turfa, *The Etruscans and the History of Dentistry*, London 2017.

Bonfante, Bonfante 2002

G. Bonfante, L. Bonfante, *The Etruscan Language. An Introduction (Revised Edition)*, Manchester 2002.

Camporeale 1997

G. Camporeale (ed.), *L'abitato Etrusco dell'Accesa: Il quartiere B*, Roma 1997.

Camporeale, Giuntoli 2000

G. Camporeale, S. Giuntoli, *The Accesa Archaeological Park at Massa Marittima*, translated by J. Denton, Follonica 2000.

Cordano 2012

F. Cordano, *Capua a falcone nominata*, in C. Chiaramonte Treré, G. Bagnasco Gianni, F. Chiesa (eds.), *Interpretando l'antico. Scritti di archeologia offerti a Maria Bonghi Jovino*, Milano 2012, 457-461.

D'Amato et alii 2016

G. D'Amato, C. Vitale, M. D'Amato, L. Cecchi, G. Liccardi, A. Molino, A. Vatrella, A. Sanduzzi, C. Maesano, I. Annesi-Maesano, *Thunderstorm-related asthma: what happens and why*, "Clin Exp Allergy" 46, 3 (2016), 390-6.

Forouzan et alii 2014

A. Forouzan, K. Masoumi, M. Haddadzadeh Shoushtari, E. Idani, F. Tirandaz, M. Feli, M.A. Assarehzadegan, A. Asgari Darian, *An overview of thunderstorm-associated asthma outbreak in southwest of Iran*, "J Environ Public Health" (2014).

Harrison, Bartel 2006

A. Harrison, E.M. Bartel, *A Modern Appraisal of Ancient Etruscan Herbal Practices*, "American Journal of Pharmacology and Toxicology" 1, 1 (2006), 21-24.

Harrison, Cattani, Turfa 2009

A. Harrison, I. Cattani, J.M. Turfa, *Metallurgy, Environmental Pollution and the Decline of Etruscan Civilization*, "Environmental Safety and Pollution Research International (ESPR)" 31 March (2009).

Minoja 2012

M. Minoja, *Capys, Campo, Caput, Capys. Riflessioni, tra archeologia e toponomastica, sul nome di Capua*, in C. Chiaramonte Treré, G. Bagnasco Gianni, F. Chiesa (eds.), *Interpretando l'antico. Scritti di archeologia offerti a Maria Bonghi Jovino*, Milano 2012, 463-482.

Pallottino [1954] 1968

M. Pallottino, *Testimonia Linguae Etruscae*, Firenze [1954] 1968.

Papini 2023

M. Papini, *Immagini di divinità e devoti in bronzo*, in E. Mariotti, A. Salvi, J. Tabolli (eds.), *Il Santuario Ritrovato 2. Dentro la Vasca Sacra. Rapporto preliminare di Scavo al Bagno Grande di San Casciano dei Bagni*, Livorno 2023, 117-135.

Recke 2013

M. Recke, *Science as art: Etruscan anatomical votives*, in J.M. Turfa (ed.), *The Etruscan World*, London 2013, 1068-1085.

Tabolli 2023

J. Tabolli, *Tra divinazione e medicina termale*, in E. Mariotti, A. Salvi, J. Tabolli (eds.), *Il Santuario Ritrovato 2. Dentro la Vasca Sacra. Rapporto preliminare di Scavo al Bagno Grande di San Casciano dei Bagni*, Livorno 2023, 234-247.

Talalay 1993

L.E. Talalay, *Deities, dolls and devices: Neolithic figurines from Franchthi Cave, Greece*, Bloomington Indiana: Indiana University Press, 1993.

Touloupa 1973

E. Touloupa, 'Καττύματα Τυρρηνικά' – 'Κρηπίδες Αττικάί', "Archaiologikon Deltion" 28,1, (1973) 116-137.

Turfa 1994

J.M. Turfa, *Anatomical Votives and Italian Medical Tradition*, in R.D. De Puma, J.P. Small (eds.), *Murlo and the Etruscans*, Madison 1994, 224-240.

Turfa 2004

J.M. Turfa, "[Weigeschenke: Altitalien und Imperium Romanum. 1. Italien.] B. Anatomical votives, in *Thesaurus Cultus et Rituum Antiquorum (ThesCRA) I. Processions – Sacrifices – Libations – Fumigations – Dedications*, Los Angeles 2004, 359-368.

Turfa 2005

J.M. Turfa, *Catalogue of the Etruscan Gallery of the University of Pennsylvania Museum of Archaeology and Anthropology*, Philadelphia 2005.

Turfa 2012

J.M. Turfa, *Divining the Etruscan World. The Brontoscopic Calendar and Religious Practice*, Cambridge 2012.

Turfa 2016

J.M. Turfa, *Health and Medicine for Etruscan Women*, in S.L. Budin, J.M. Turfa (eds.), *Women in Antiquity*, vol. 2, London 2016, 797-809.

Turfa, Becker 2019

J.M. Turfa, M.J. Becker, *A very distinctive smile: Etruscan dental appliances*, in J. Draycott (ed.), *Prostheses in Antiquity*, London 2019, 49-70.

Turfa, Gettys 2009

J.M. Turfa, S. Gettys, *The Skill of the Etruscan Haruspex: A Biological Basis for Successful Divination?*, "BABesch" 84, 2009, 41-52.

Turfa, Muskett 2017

J.M. Turfa, G. Muskett, *Catalogue of Etruscan Objects in World Museum, Liverpool*, Oxford, 2017.

Abstract

The finds of votives, sculptures and inscriptions at San Casciano reveal attitudes that resemble a modern appreciation of medical practice, linking religious observance with basic medical techniques such as observation (votive figures that display pathological conditions) and treatment procedures (like surgery, attested by offerings of instruments). The deliberate display of human anatomical subjects, whether anomalous or generalized (e.g. uterine variations or simplified hands, feet, etc.) further attests to a clientele and officials who are well aware of the medicine of their day and its possibilities. It appears, from evidence such as haruspicy and brontoscopy that worshippers in central Italy were always strongly aware of the environmental factors surrounding them. The archaeological evidence when linked to ancient literary data and interpreted with reference to modern medical literature will show parallels to Biometeorology, perceptions of industrial pollution, surgical practice and more.

keywords | Anatomical votive models; Biometeorology; Etruscan inscriptions; Thermalism.

questo numero di Engramma è a invito: la revisione dei saggi è stata affidata al comitato editoriale e all'international advisory board della rivista



la rivista di **engramma**

luglio **2024**

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