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Research

Astronomy and Etruscan Ritual: The Case of the Ara della Regina in Tarquinia

Abstract. The ancient town of Tarquinia is the key place of the Etruscan system of beliefs, since its foundations were credited to Tarchon, descendant of the Greek hero Herakles, founder of the Etruscan League, and discloser of the sacred texts of the *Etrusca Disciplina*. These were said to come from the infant oracle Tages, who sprang out from the terrain in front of Tarchon while he was ploughing a field. In order to gain a better understanding of the relationship between the archaeological records and the Etruscan symbolic world we investigate here on different orientations and on their possible symbolic meaning at the Ara della Regina, the sanctuary of Tarquinia. The main base appears to be related to the sun rising a decades before the spring equinox, while the Archaic altar, probably representing Tarchon's cenotaph, was orientated to the setting of the constellation Herakles.

Keywords: Archaeoastronomy, Tarquinia, Etruscans, Ara della Regina

1 Introduction

The ancient town of Tarquinia (Etruscan *Tarchna*, Roman *Tarquini*) can be ideally situated at the very roots of the Etruscan civilization. Indeed, although the site is world-famous for the Monterozzi Necropolis, hosting spectacular painted tombs dated to the second century BCE, Tarquinia itself is much older. Its foundation myth actually connected the town with Tarchon, descendant of the Greek hero Herakles and founder of the Etruscan League, and with the sacred texts which were at the basis of the Etruscan system of rules and beliefs, the *Disciplina*. The texts were said to come from the oracle Tages, a child with the wisdom of a sage, who sprang out from the terrain in front of Tarchon while he was ploughing a field [Bagnasco Gianni 2013].

Archaeology has fully confirmed the antiquity and sacredness of the place. The ancient settlement – dated as early as the tenth century BCE – was located on the hill known as Pian di Civita, which lies some 3 km to the west of the modern city and remained uninhabited after the Romanization of the town. Thus, fortunately, ancient Tarquinia lies in an almost intact landscape, touched only by agriculture. Most of the settlement has yet to be unearthed, but two main areas are relatively well known, thanks to the excavations that the Università degli Studi di Milano has carried out since 1982 [*Tarchna I-IV*]. These are the ‘monumental complex’ and the huge sanctuary called Ara della Regina on the Civita plateau. These two important sites show a series of constructive phases and deserve attention from the point of view of the spatial organization, which is one of the most relevant issues in Etruscan culture and religion. It is indeed widely accepted that the principles of the Etruscan religion, forming the *Etrusca*

Disciplina, were based on the concepts of ‘division, delimitation and orientation’ that produced favourable/unfavourable sectors, regardless of the shape and size of the object of the practice of divination [Bagnasco Gianni 2008]. This is well attested in ancient literary Greek and Latin sources, such as the Latin authors reporting the prophecy of the Etruscan Nymph Vegoia [Lachmann 1848: 350,17-351,11]. They point out that shortly after the cosmos was created, Tinia – the most important god of the Etruscans comparable to the Greek Zeus – ordered the fields to be measured and divided. Further, the regular division of the cosmos into sixteen sectors mentioned by later Latin authors such as Martiano Capella is visible in the famous bronze liver from Piacenza, reproducing a sheep liver used in epatoscopy, where sixteen Etruscan Gods correspond to the sixteen sectors of the external perimeter.

This being the situation, it is somewhat strange that the archaeological documentation has not, until now, provided a sufficient amount of convincing evidence that astronomy was incorporated in the Etruscan buildings and town planning. For instance, some features of the foundation and the urban plan of Etruscan cities, such as Marzabotto, are convincing from an astronomical point of view, but others are not; in particular, at Marzabotto, the orthogonal grid of the town is skewed more than two degrees with respect to the cardinal points [Mansuelli 1965]. Another point which is pretty much unclear is how the orientation of temples and sanctuaries was related to the sky (see § 3 below).

The correct science to be used to investigate this issue is, of course, archaeoastronomy in its modern achievement, that is, a discipline strongly coupled with landscape archaeology and carefully compared with the historical and archaeological record [Ruggles 2005; Magli 2009]. The present paper is the first of an ongoing project aimed at analysing these aspects in the excavated sanctuaries and sacred areas of Etruria. We focus here on the Ara della Regina sanctuary. A GIS geo-referenced cartographic database has been created with the express purpose of meeting the needs of the landscape analysis. For this reason the GIS cartographic database takes advantage of a LiDAR survey because it guarantees a metric basis of the greatest accuracy and precision to assess the dimensional features and orientations of all issues considered [Bagnasco Gianni et al. 2011].

2 The Ara della Regina sanctuary

Ara della Regina is an outstanding monument of the Etruscan religion (figs. 1 and 2). It underwent a sequence of four major phases of construction since at least the beginning of the sixth century BCE (two Archaic, Classic and Hellenistic). They rose on a high base of levelling courses (34 x 55 m) built to regularize the hill to the NW and create a flat ground level.

During the third phase of the sanctuary (set at the beginning of the fourth century BCE), a huge terrace was added in front of the high base where the Archaic Temples I and II rose, and the Classic Temple III was adorned with the famous terracotta plaque of the Winged Horses Group, as shown by the chronology of its stylistic features. The plaque has been recently reconstructed as a fragment belonging to a group with the story of Herakles’ apotheosis after his burning on the pyre; this reconstruction is fostered by two more terracotta fragments sharing the same style, technique and ceramic composition, and by the comparison with the iconography of two large vases, Attic and Apulian [Bagnasco Gianni 2011] (figs. 3, 4).

Fig. 1. A view of the huge base of Ara della Regina. Photo: Authors

Fig. 2. Plan of Ara della Regina, showing the Archaic Temples I and II and of the whole extension of Temple III with the terrace in front including altar α and structure β . In sector A, altar α visibly protrudes beyond the southern limit of the temple. Plan: [Tarchna IV]. Reproduced by permission

Fig. 3. Tarquinia, Ara della Regina sanctuary, reconstruction of the pediment of Temple III. Drawing: G. Bagnasco Gianni [2011]

Fig. 4. The Winged Horses Group after restoration. Tarquinia, Museo Nazionale Tarquiniense.
Photo: Authors

Like the majority of the Etruscan sanctuaries, the Ara della Regina shows a series of architectural strategies – depending largely on the symbolic dimension – that were put in place over the course of the centuries. Its main function appears to have been to preserve the memory of important issues related to the very core of the history and traditions of the Etruscans of Tarquinia.

In particular, a key moment in the history of the sacred site occurred at the beginning of the fourth century BCE when the two structures denoted as altar α and structure β incorporated in the terrace a pre-existing sacred area most probably dedicated to Tarchon, the hero-founder mentioned earlier, the discloser of the *Etrusca Disciplina* and the father of the twelve peoples of Etruria. The two structures remained clearly visible as they are today, with the front of the altar slightly protruding from the side of the main temple (fig. 5).

The excavations (1983-2002) revealed that altar α was constructed over a pre-existing structure sharing the same orientation. It is an Archaic chest (0.65m high, 0.55m wide and 1.60m long) made of slabs of local stone (*macco*). This area in front of the base of the Archaic Temples I and II was also marked out as significant by a wall (fig. 5, marked as n. 24 in sectors A and C), made of differently coloured stone blocks, functioning both as retaining wall and as Archaic precinct within the sacred area [*Tarchna IV*]. This Archaic ensemble is consistent with what we know about the tradition of heroes at the foundation of mythical sites and sanctuaries [Rykwert 1999] and with the discovery, again in the terrace, of an inscribed marble fragment of the Imperial period. The Latin inscription makes a reference to Tarchon. It is therefore tempting to consider the Archaic

chest as the cenotaph of Tarchon, incorporated in the monumental altar at the beginning of the fourth century BCE [Bonghi Jovino 2010; Tarchna IV] when the sanctuary was adorned with the pediment containing the apotheosis of Herakles, of whom Tarchon himself was an offspring [Bagnasco Gianni 2013].

Fig. 5. Ara della Regina, the altar from the north. Photo: Authors

3 The solar orientation of the main base

Our analysis of Ara della Regina was devoted to identifying possible cognitive aspects of this complex, ‘stratified’ situation of monuments on the plateau. In particular, we wanted to investigate on the fact that the monuments did not conform to a single orientation, in order – if possible – to clarify its interpretation. We started from Temple III furnished with the terrace in front and the pediment with the Winged Horses.

Our measure of the axis, from inside looking out, coincides with that already available in the literature and is of azimuth 95° . This orientation is clearly in the solar range and corresponds to about twelve days before and after the spring and autumn equinoxes. We verified the phenomenon on site on 9 March 2012 (fig. 6).

The sun rises from beyond the flat hill in front of the Ara, which actually functions as a levelled, ideal artificial horizon for solar observations since it is practically at the same altitude as the Ara. The hill, called Cavone, hosted a necropolis [Perego 2005]. As is well known precession does not affect solar alignments but, due to the slow variation of the obliquity of the ecliptic, the Gregorian (solar) date would have been slightly displaced (by a couple of days) in ancient times.

Fig 6. The sun rising in alignment with the axis of Ara della Regina on 9 March 2012.

Photo: Authors

This orientation would be quite understandable in a Greek (or Magno-Greek) context since the vast majority of the Greek temples are orientated within the range of the rising sun (for instance, the famous *extra moenia* Greek temples of Selinunte share the very same orientation of around 95° [Aveni and Romano 2000]). This is not, however, the case of Etruscan temples. Although a complete database of their orientations does not exist (this is actually one of the aims of our project) existing lists of data do not show a preference for the arc of azimuth of the sun at rising; actually most orientations fall in between the winter solstice sunrise and the winter solstice sunset [Aveni and Romano 1994, Prayon 1997]. This means that the sun does *never* penetrate the majority of Etruscan temples in full (that is, at rising) but does *always* illuminate fully the facade at one moment every day. Orientation at sun rising is also unusual within the Italic context since it has been recently shown that the Italic temples are orientated in the even narrower arc of the sun *climbing* in the sky (that is, between winter solstice sunrise and due south) [Pagano and Ruggeri 2011].

The Tarquinia monument is thus a quite rare example of an Etruscan temple orientated towards the rising sun; among these, it is actually the most easterly oriented, as the first rays of the sun at dawn penetrated the building up to the final cella a few days before the spring equinox and after the autumn equinox. The orientation of the building is not constrained by the morphology of the terrain and, although close to due east, is too far from it to think to an error of the planners. Thus we can be sure that the orientation of the monument did not originate from a symbolism related to cardinal points. Rather, the solar orientation of the Ara appears to be connected with the fact that the full architectural settings of the Archaic Temples I and II of the Ara della Regina sanctuary show strong connections with Magna Graecia and Sicily [Bonghi Jovino 2010]. To try to understand the meaning of this orientation the first problem is to ascertain which one of

the two dates was selected. We favour the days before the spring equinox. In absence of direct Etruscan written sources about their calendar, except for the so-called Brontoscopic calendar which is nevertheless useless in the present situation [Turfa 2006], our interpretation can only be based for the time being on the Roman calendar. Here we have several possible connections with the first ten days of March; among them it is worth noting that prior to the Julian reform New Year's day fell at the beginning of the month. Further, as first noticed by Aveni and Romano [1994], the orientation acted as an harbinger for the period when – at least in Rome – the Mamuralia festival was celebrated. Interestingly enough, the symmetric date at the beginning of October signalled – again, in Rome – the end of the 'warfare' period. However, other possible festivals have still to be studied and possibly taken into account within the general framework of the sanctuary, which is now starting to be revealed by the most recent excavations.¹

4 The orientation of the altar and its possible meaning

We now turn to altar α . The altar lies on the $160^\circ/340^\circ$ line (as we shall see, it is likely that the orientation to be considered is from outside looking in, so that azimuth 340°).

It is clear that this is a monument conserved for its symbolic value. Access to it from the exterior base was as difficult then as it is today, since the structure was incorporated into the masonry of the main monument without a dedicated access ramp. There is no recognizable geo-morphological reason for its orientation, which therefore was likely chosen on the basis of symbolic criteria. The azimuth of 160° is well below that of the rising sun at midwinter, so the monument might be considered as simply oriented to the climbing sun, a possibility which we of course cannot rule out. However, both the fact that it is an altar sloping up towards 340° and the absence of topographical constraints lead us to think that the altar could have been oriented in the *opposite* direction.

By reconstructing the sky at Tarquinia in the fifth-fourth century BCE, it can immediately be seen that the altar was pointing towards the region of the sky where the stars of the constellation Herakles were seen to set. Precession was slowly completing the task of making Herakles a non-circumpolar constellation, so that only the stars of the feet were still circumpolar. The constellation is readily recognizable, although it does not have first magnitude stars; the huge figure of the kneeling men was seen to 'sink' at the horizon in alignment with the altar, with η -Herculis, a star placed at the base of the left leg of the figure, setting with the northernmost azimuth.

5 Discussion

We endorse the idea that the alignment of the altar to the setting of Herakles was intentional, so that the rather complicated structure and the different orientations of the Ara della Regina sanctuary arose from the complex interplay of different factors. However, many comments are in order.

First of all, the Etruscan constellations are not known, although the interest of this people in the sky is, of course, beyond any doubt. It is not unreasonable to think that, just as the general structure of their pantheon of gods in this historical period reflected a Greek influence, their imaginative view of the stars could also have taken advantage of Greek knowledge, in combination with their ancestral beliefs.

As is well known, determining the origin of the ancient Greek constellations is a difficult question in itself. Apart from several references to asterisms and stars in Hesiod

and Homer, the earliest solid historical information comes from Eudoxus (writing around 400 BCE), preserved in Aratus's work written around 270 BCE [Kidd 1997; Condos 1997; Allen 1963]. Here the constellation is presented as a kneeling (or one-leg kneeling) man and called *Engonasin*, the One on his Knees. The first explicit identification of the same stars as Herakles known from written sources occurs later, with Heratostenes, while a part of the same constellation might have been identified with a kite in Ovid's work [Hannah 1997]. On the other hand, Hyginus mentions that the same constellation was called Herakles by Aeschylus, thus already at the end of the sixth century. As a whole, we cannot be *sure* that the Kneeling Man was identified with Herakles in the same period in Etruria; we mention, however, that the iconography of the hero kneeling as an archer is already present at that time in Etruscan and Greek iconography.

Further, the hypothesis that the alignment to Herakles is not coincidental is backed up by two independent facts, one of astronomical and the other of archaeological origin. The astronomical fact is the following. The north celestial pole was too close to Herakles for this constellation to have a true period of invisibility. However, heliacal rising of his non-circumpolar stars – in particular, of η -Herculis – occurred in close correspondence with the solar alignment of Ara della Regina, some ten days after the autumn equinox. In other words, an observer looking at the eastern horizon during pre-dawn in those days would have seen the 'legs' of Herakles rising just before the sun, and then the sun in alignment with the Ara (fig. 7).

Fig. 7. The eastern horizon (solid line) as seen from the Ara della Regina at pre-dawn ten days after the autumn equinox in 500 BCE. The 'legs' of Herakles rise just before the sun. The sun is going to align with the azimuth of the temple at dawn. Rendering: Authors

From the archaeological point of view, it should be observed that Tarchon – to whom the altar α was probably devoted – was thought to belong to Herakles mythical lineage, so that the hero's deeds were represented in the terracotta plaques of the Archaic Temples I and II of the Ara. Most probably, as already mentioned, the pediment of Temple III in itself was adorned with Herakles' apotheosis on the chariot of the Winged Horses, thus completing the intricate – but coherent – ideology associated with the huge sanctuary.

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Notes

1. The reader should be warned that it can be dangerous to apply directly to an Etruscan context interpretations arising from a Roman cultural environment. A thorough, more general study of such an issue is going to be part of our future research, taking advantage of our interdisciplinary approach.

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