

## THE ORIENTATIONS OF THE NINE THOLOS TOMBS AT MYCENAE

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A Mycenaean tholos tomb consists of a circular, subterranean burial chamber, sometimes referred to as a *thalamos*, roofed by a corbelled vault and approached by a *dromos* that narrows abruptly at the *stomion* or opening into the tomb chamber. The chamber is built of stone rather than simply being hewn out of the bedrock. Such tholoi were usually, though not invariably, set into slopes or hillsides. Burials were laid out on the floor of the tomb chamber, or were placed in pits, cists, or shafts cut into this floor.

The nine tholoi at Mycenae (Figures 1 and 2) constitute by far the largest collection of monumental tholos tombs to have been found at a single site. They span the period from LH IIA to early LH IIIB (about 1525 to 1300/1275 B.C.). Their modern names derive from their locations (Epano Phournos, Kato Phournos, Panayitsa); from finds made in or near them (Lion Tomb, Tomb of the Genii); from architectural features (Cyclopean Tomb); or from members of the mythical ruling house of Mycenae (Aigisthos, Atreus, Klytemnestra). These names are purely traditional and have no particular significance with respect to the protohistory of the Aegean Late

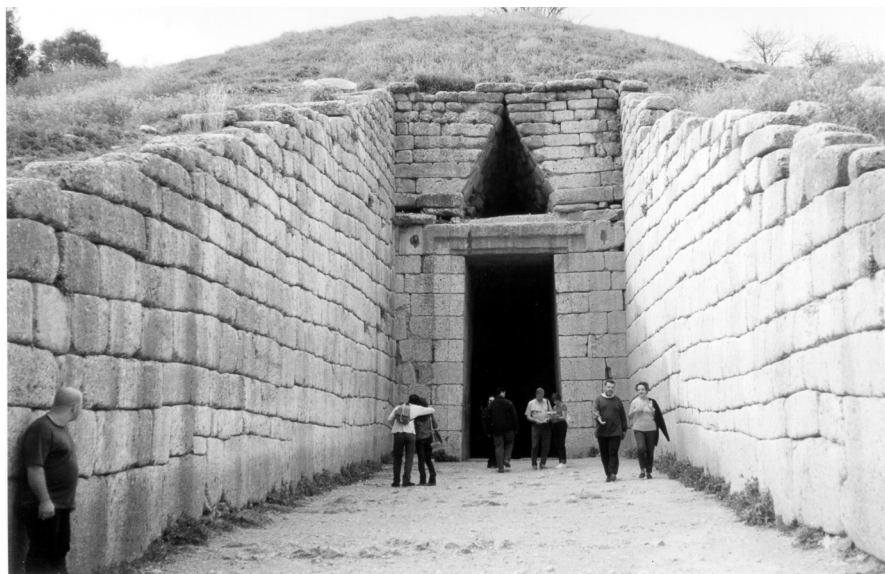


FIG. 1. The dromos of the tomb known as the Treasury of Atreus.



FIG. 2. The stomion of Kato Phournos and the remains of the chamber.

Bronze Age, and here they are simply numbered 1–9. Further details of the tombs can be found elsewhere.<sup>1</sup>

I visited Mycenae with colleagues in February and March 2001 in order to measure the orientations of the nine tombs and to compare them with the downhill directions. The first such measure is the result of human activity, the second is natural, and I wished to test whether, as has been claimed,<sup>2</sup> there is a close correlation between the two. Special interest attaches to two tombs behind the Treasury of Atreus, for the site-plan in a well-known guide (Figure 3) suggests that these look along the contours.<sup>3</sup>

Table 1 shows in successive columns: (1) our number for the tomb; (2) the traditional name for the tomb; (3) the direction in azimuth of the right side of the dromos; (4)

TABLE 1. Directions faced by the Mycenaean tholoi compared with the downhill directions.

1	2	3 °	4 °	5 °	6 °	7 °
1	Treasury of Atreus	102½	101½	102	99½	+2½
2	Panayitsa	254½	255½	255	253½	+1½
3	Epano Phournos	189½	180½	185	210½/182½	–25½/+2½
4	Cyclopean	284½	280½	282½	280½	+2
5	Genii	301½	300½	301	301½	–0½
6	Kato Phournos	274½	273½	274	273½	+0½
7	Klytemnestra	166½	169½	168	169½	–1½
8	Aigisthos	199½	196½	198	196½	+1½
9	Lion	335½	333½	334½	335½	–1

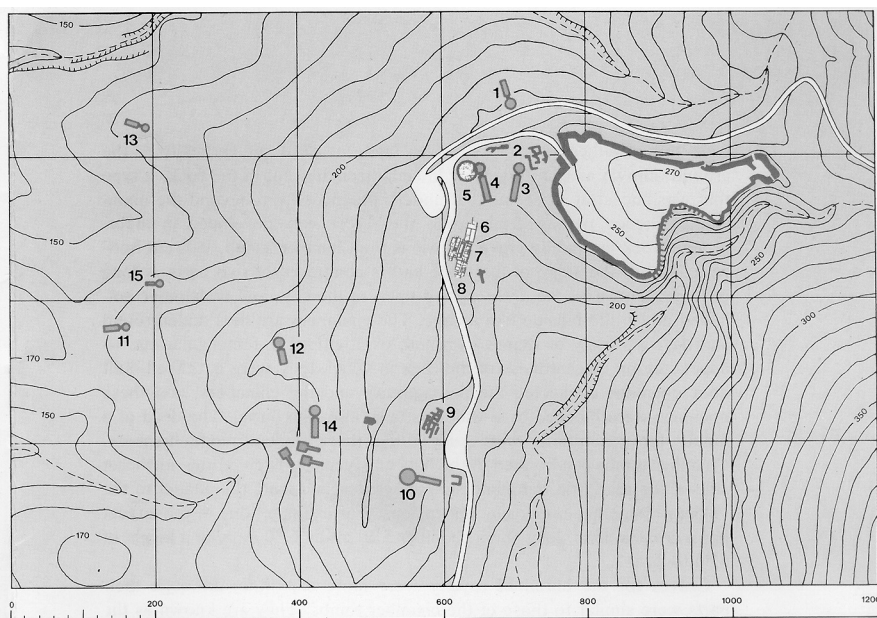


FIG. 3. Topographic plan of the area of the Mycenaean tholoi, from *Mycenae: A guide to its ruins and history*, by George E. Mylonas (Ekdotike Athenon S.A., Athens, 1985), reproduced by kind permission of the publisher. The tombs are numbered as follows: 1, Lion; 3, Aigisthos; 4, Klytemnestra; 10, Treasury of Atreus; 11, Cyclopean Tomb; 12, Epano Phournos; 13, Kato Phournos; 14, Panayitsa; 15, Tomb of the Genii. The plan shows all except those labelled 12 and 14 as oriented downhill. Tomb 12 (our Tomb 3) is discussed in the text, while Tomb 14 (our Tomb 2) in fact faces downhill when the drawing is corrected to show the tomb's true orientation.

the corresponding direction of the left side; (5) the average of these two directions; (6) the azimuth of the downhill slope; and (7) the difference between (5) and (6). The directions were measured with an accurate compass, since there is no reason to expect any magnetic anomaly at the site, and corrected for the current magnetic variation of  $2\frac{1}{2}^{\circ}\text{E}$ .

In eight of the nine tombs, the difference between the orientation of the dromos and the downhill slope is always less than  $3^{\circ}$ . As they face in very different directions, it must be that their orientation was indeed chosen so that they faced downhill. The dromos of the ninth tomb, Epano Phournos, is badly damaged, but it forms a relatively large angle with the direction of the nearby road, which marks the general downhill trend. However, the axis of the dromos is parallel to the direction of the small elevation that leads to its stomion and which constitutes another downhill direction, at an angle of some  $25\frac{1}{2}^{\circ}$  to that of the road. It would seem that the builders opted for this latter direction, possibly because the modern road follows the track of the ancient one and the builders were required to avoid building across it.

We conclude that the Mycenaean tholoi were laid out to face downhill, unlike the tholoi of Almería in southern Spain,<sup>4</sup> which face easterly, mostly within the range of sunrise. These Spanish tholoi were at one time thought to be the work of settlers from Mycenae,<sup>5</sup> but radiocarbon dating has since shown them to be a millennium and a half older. It is worth remarking that if only earlier archaeologists had taken an interest in orientations, the study of the customs observed by the builders of these monuments would have been sufficient to cast grave doubt on the ‘settlers’ hypothesis, since the Mycenaean orientations were dictated by topography, but the Almerian by astronomy.

### *Acknowledgements*

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### REFERENCES

1. “Mycenaean tholos tombs and early Mycenaean settlements”, various authors, 1997, in *Lessons*, Dartmouth Web-Pages ([http://devlab.dartmouth.edu/history/bronze\\_age/lessons/19.html](http://devlab.dartmouth.edu/history/bronze_age/lessons/19.html)); P. Belli, “Architecture as craftsmanship: LM III tholoi and their builders”, *TEXNH: Craftsmen, craftswomen and craftsmanship in the Aegean Bronze Age*, ed. by R. Laffineur and P. P. Betancourt (Liège, 1997), 251–5, and Plates XCIX–CI; A. J. B. Wace, “IX. The tholos tombs”, *Mycenae: British School excavations*, xxv (1920–23), 283–402 and Plates XLIV–LXI; *idem*, *Mycenae: An archaeological history and guide* (Princeton, 1949).
2. In the Dartmouth Web-Pages (ref. 1).
3. It should be noted that the contours are differently, and sometimes better, presented in H. Wace *et al.*, *Mycenae guide* (Meriden, Conn., 1976).
4. Michael Hoskin, *Tombs, temples and their orientations* (Bognor Regis, 2001), 59–62.
5. For example, V. G. Childe, “The Middle Bronze Age”, *Archivo de prehistoria levantina*, iv (1953), 167–85, pp. 174–5. See Robert Chapman, *Emerging complexity* (Cambridge, 1990), 25.