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## **Mobility as a drive to shape cultural landscapes: prehistoric route-use in the Argolid and surroundings, Greece**

Brysbaert, A.N.; Vikatou, E.; Brysbaert, A.; Vikatou, I.; Pakkanen, J.

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# SHAPING CULTURAL LANDSCAPES

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# **SHAPING CULTURAL LANDSCAPES**

*Connecting Agriculture, Crafts, Construction,  
Transport, and Resilience Strategies*

ANN BRYLSBAERT, IRENE VIKATOU & JARI PAKKANEN (EDS)

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# Mobility as a drive to shape cultural landscapes: prehistoric route-use in the Argolid and surroundings, Greece

Ann Brysbaert and Irene Vikatou

## 1. Introduction

Starting on a journey provides an opportunity for communication and change, and the act of leaving a place makes people realise how mutable people's lives become. People have, for ever, taken to the road and to exploration, and have engaged in intercultural contacts for plenty of good and not so good reasons. The movement of people, their animals and possessions, the movement of people's ideas, thoughts, skills and knowledge, are a constant factor which relies on the purpose of the travel and who travels, when and where, and it can be one- or multi-directional. People's mobility also depends on the available infrastructure facilitating movement and travel. For example, path and road surfaces with packed earth are more difficult to negotiate in rainy seasons than ones built of hardier materials, and, if not well-maintained, soon become precarious. However, safe, well-scouted and -trodden routes, especially in mountainous areas with continuous, but perhaps dynamic, inhabitation patterns may illustrate very persistent features when they serve co-dependent features in the landscape: crop fields, villages, farms, marketplaces, larger administrative towns, ritual and memorial spaces, and (other) infrastructure. Ethnographic, historical, and archaeological research on mobility and landscape modifications indicate that older roads may be in use for centuries or millennia (Via Egnatia albeit with 20-21st century modifications) or may be given a new life to fit current needs (e.g. Via Appia Project: de Kleijn et al. 2016).

People's mobility was part of even their daily sedentary existence, and motivation for moving between places was easy to find: visiting kin; going to work; herding animals; collecting and selling produce; scouting for, extracting, transporting a range of resources; going to war; fleeing. This list is not unlike what we encounter today. Even the bodies of people, but also animals and plants in themselves are in constant motion as they grow, decay, get hurt, die, and refertilize new life (e.g. turtles coming back to their place of birth to lay eggs forms a good example). As narratives of past migrations across wide areas of the planet are now substantiated by ancient DNA studies, the more local or regional day-to-day movement of people, animals and many other resources seem somewhat less considered. This is especially the case for how people themselves experienced these daily movements and how they tried to achieve these.

In the context of the late Middle until the end of the Late Bronze Age in the Argolid (northeast Peloponnese, Greece) and surrounding regions (c. 1600-1100 BCE; hereafter MBA, LBA), people's mobility patterns took on a different level in contrast to earlier periods as veritable building programmes took place especially in the 13th century BCE

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and resulted in awe-evoking citadels, burial monuments, waterworks, roads, and bridges (e.g. Maran 2010; Simpson and Hagel 2006). Many expressed that these building programmes must have mobilized substantial labour forces over sustained periods of time. But these construction works were far from the only reason why people exerted coordinated efforts and moved around on a day-to-day basis. As a wide range of different craft production processes took place, agriculture and animal husbandry were the predominant subsistence strategies for most people in the Greek LBA. Also, these types of production and consumption processes required a great deal of movement and effort (Brysaert 2020; 2021; 2022a).

The aim of this paper is to discuss and reconstruct a fuller picture of the mobility patterns of multiple human, animal, material and immaterial resources and their interactions which shaped, and were shaped, by both the material and immaterial elements of mobility in the LBA Argolid region and its surroundings. The topic of movement and mobility, and specifically how this could have been achieved locally, regionally, and interregionally is investigated. As will be shown, people and their resources employed a substantial Mycenaean road network in the topographically varied landscape of the Argolid and surroundings prior to the demise of the Mycenaean societies in around 1200 BCE.

## 2. Mobility, movement, travel, and transport

Mobility is totally interwoven with energy expenditure. Contra sedentarist theories in which staying put and being stable in one place is the norm, the ‘mobility turn’ allows for movement to be considered as normal for being a sedentary human, and it also stresses the importance of networked places (Sheller and Urry 2006: 208-209). Social entities comprising of people, animals, technologies, and information in systems of movement are not free from space and place. Terrains are no longer seen as objective and spatially fixed geographical containers for social processes: we make our way *through* a world-information (cf. Ingold and Vergunst 2008: 2). Consequently, maintaining both sedentary and mobile lifestyles result in embedded and immobile infrastructures, such as roads and ports, and costs can be measured in terms of energy spent and materials processed. Mobility is thus materialized and grounded, just as much as the traveller is (Ingold and Vergunst 2008). The ‘mobility turn’ studies physical movement (walking, climbing), movement enhanced by technologies (vehicles), movement of images and information at various scales, and movement of skills, knowledge, ideologies, and beliefs. It also investigates immobile infrastructures for transport and its borders, and gates that stop, channel, or facilitate movement. Many of these are connected and fluidly interdependent. As

such, the ‘mobility turn’ questions and studies patterns of concentration that create zones of connectivity, centrality, and empowerment, on the one hand, and disconnection, social exclusion and inaudibility, on the other (Graham and Marvin 2001: 87-88, 308, 383-385). People’s mobility is thus certainly one of the many aspects that are part of Ingold’s taskscape (1993: 162) which he defines as ‘a pattern of activities collapsed into an array of features’. These can include areas of production and spaces in which ideas are transferred.

Sheller and Urry (2006: 211-213) point out that the mobility turn does not reflect one single network but, instead, it has complex intersections of endless regimes of flow which move at different speeds and scales. This is because walking, vehicular transportation, movement of images, information and ideas, and movement – enhanced by roads, and bridges – influence each other. This way of looking at mobility resounds very closely the meshwork of lines of life (Ingold 2011). Nowadays, when we move in a known or unknown territory we often think in several dimensions (latitude and longitude, next to height, time, and our perceptions and experiences), certainly when we employ GPSs on phones or in cars. Ingold (2011: 149-150), moreover, distinguishes between lineal movement along a path of travel and lateral movement across a surface. On the one hand, he sees the wayfarer as being continually on the move, in an ongoing process of growing, development and self-renewal for as long as life goes on, and in which they are sustained from within. A wayfarer moves along a path, laying out a trail while crossing other such trails. As such, they inhabit the earth through embodied experiences of moving through, around, to and from places and from one place to another (applied example in Koussoulakou et al. 2015). On the other hand, he sees that transport takes place when people move across a surface, along specific latitudes and longitudes, while Bakke (2007: 95) believes that people in the past would never have thought about it in this geometric way. Human existence thus seems *place-binding*, not *place-bound*, as it unfolds, not in places, but along paths (Tilley 1994: 25). The concept of transport, to Ingold, is destination-oriented, during which people and goods carry across from location to location. At a first glance, Ingold does not see the transporter as a mover within himself but rather as *being moved* (as if a passive entity) by the means of transport, until the destination is reached, and *being sustained* by his/her supplies (water, food).

According to Kirby (2009a: 4) too many scholarly analyses have taken it as a given how the axes of space were extended and were overlaid on top of existing notions of relations, proximities, and affect. This was done by replotting alternative social mappings in x, y and z co-ordinates, and facilitating proliferation of a certain culturally anchored set of political relations. Kirby (2009a: 11-16) sees movement more as an essential component of

the effervescence and improvisation of social life, or of the inevitability of movement across, or along, spatio-political structures or boundaries intended to restrict movement. He asserts, however, that boundaries do not always disappear simply because of an increase of mobility, just as relations are not necessarily severed because of the presence of boundaries. Movement is life and through movement (in a foreign world) researchers could become more sensitive to the spatial, cultural, and political dimensions of social life. In this light, movement is seen as a vehicle in analysing social experience of surroundings (Kirby 2009a: 15).

### 3. Moving in a topographically varied landscape

When travelling in mountainous regions, horizontal movement combined with height and slope and road gradients need to be negotiated since these affect wayfinding within a varied topography. When a destination is set, a direction of travel may suggest itself. Depending on the purpose for travel and the load taken, speed, time, means of movement, and the amount of exertion required, all become important parameters and, depending on the goal, some will take priority over others. Even when walking for recreation, we may want to be back before dark, for example. In conjunction with all these factors, we need to determine how to get there: what are the means (pedestrian, vehicle type) and route options, and what are our priorities: speed, ease of terrain and route, or specific resting places?

If we journey somewhere for the first time, we encounter unknown places that bring along attractors (rest places, water holes) and deterrents (seasonally inaccessible roads, dangerous ravines). Such journeys are aided by (inter)visibility and navigational indicators, especially in a topographically varied landscape, as surprises and danger may lurk behind every turn. Our knowledge of such navigational indicators on chosen roads strongly influences whether those roads will facilitate or restrict our movements. Further facilitation or restriction of movement occur when roads are controlled by specific groups, or travel *has* to go via specific roads (e.g., tolls). The crucial navigation markers, then, are both physically real, and in the traveller's mind who then uses them to make decisions about a direction. These markers are included in mental maps (see Ingold 2011) on which real distances are less important than perceived ones, and in which value ascription is not purely cost-based but is experientially obtained. The value and meaning given to trajectories may be as important for the traveller as the distance covered. This perceptive quality of movement lies in another dimension of movement: time. A traveller cannot be in two places simultaneously and, therefore, cannot be the same person upon arrival somewhere as they were before they left. It takes time to get there (Ingold 2011: 152).

A landscape, too, carries meaning through how it is perceived, experienced and contextualized (Knapp and Ashmore 1999: 1). Places with sacred geographic features such as ritual stopping points (e.g., wells or shrines), or perhaps places that indicate connections to ancestors (tombs), or quarries (see red and blue stones at Tiryns, Brysbaert 2015) can, therefore, be or become important landmarks or even navigational indicators. People's perception of the landscape is tied up with movement and their (repeated) experiences in this environment (Kirby 2009b; Ingold 2011: 11). Social knowledge of, and movement through, a social milieu is topo-mnemonic in character, memory is always influenced by spatial practice and spatial cues, and engagement in surroundings flows from embodied mnemonic interplay with characteristics of place in a community (Kirby 2009a: 16). As such, places lived in are not indifferent (Bachelard 1994: xxxvi), it cannot be. Places are defined by movement. Repeated experiences in a landscape may be linked together (e.g., traffic between home and place of work), but they also include memories, in themselves linked to past activities/events (funerals, processions). The persistence of routes is an outcome of these experiences and associated processes. Experiences and memories lead to a better grasp of that route along which we move. So, the route's meaning and use can influence or can be influenced by its trajectory, its beginning and end. All along, the presence of older meaningful places or navigation markers, were important. This, in turn, can lead to persistent places (Tuan 1977), but also to a world which embraces its inhabitants in its own renewal through the seasonal cycles. For example, seasonal torrential rains can easily destroy an earthen road along a mountain slope.

An understanding of the role of navigational indicators cannot be complete without considering aspects of visibility, especially in a topographically varied landscape. Visibility studies relating to mobility and navigation are well established in archaeological landscape studies more generally. For the Mycenaean Argolid, however, there are very few, although statements on visibility and intervisibility have been made throughout architectural studies (e.g., Müller 1930; Maran 2006). Studies on sea-based navigation are well known from Aegean islands archaeology (e.g., Broodbank 2000; Jarriel 2018) and Brughmans (et al. 2018: 479-483) provides an overview for the Caribbean. Another type of visibility study which helps to explain site locations (after Brughmans et al. 2018: 480) is exemplified by Mason's (2007) paper on the visibility of the location of the Treasury of Atreus from various vantage points as a political statement, as much as the tholos construction and size itself. Finally, Tartaron et al. (2011: 615) show the importance of site intervisibility in higher upland areas since this seems to be systematically important in the region around Kalamianos for their

choices of settlement locations. Being visible is ‘saying something’ after all, and intended visibility markers, whether natural or constructed, are part of strong and effective communication strategies as long as the sender and receiver understood the message. They may form a level of control and inherent safety as well.

Moving in any territory, reliance on the senses plays a crucial role, especially if the unknown unfolds in front of the traveller. The better someone knows an area through repeated encounters with it, the finer tuned their perception of it is (Ingold 2011; Slayton 2017: 27): after having walked the same route for several years, we may still see something which we had not noticed before. Trying to understand how people’s perception of their surroundings and movement within, how they articulated social engagement, and how they enacted relationships with each other through movement is hard, especially the further you look back. But certain types of informants may aid in getting another perspective on this matter. The ethnographic work by anthropologists with nomads (e.g., Gooch 2008), professional travellers or ordinary people who move a lot, all contribute to better understandings of these topics as new studies show the changing character of people’s roots, identity and affiliation in a modern world of porous borders and novel connections. But while this reflects current situations, there is no reason to believe that such matters were very different in the past. As Kirby (2009a: 15) states: ‘The liaison between bodies and environs brings endless adaptations and growth, with the land influencing denizens and travellers as much as the reverse. Movement is central to this engagement between being and surroundings’. In seeing movement in this light, any Cartesian perspective of movement in the vessel that the landscape is considered to be, has been enmeshed with the sensory experience of being in and with the land.

The timing and repetition of each trajectory, leading to new and accumulated experiences, are essential to form a mental map that would enable us to return along the same route after our business is done. The active process of remembering navigation markers, whether in our mind or physically present, must have been an intergenerational practice, and must have resulted from well-bonded social groups with integrated knowledge of their surroundings (Ingold 2011: 161). Less-experienced travellers could be initiated in unknown trajectories and its difficulties by experienced travellers, as is also the case nowadays. Based on negotiating their emerging capacities with the affordances and restrictions of the environment in which they are, and in doing this together, communities of practice are created (Lave and Wenger 1991; Wenger 1998: 77; Ingold 2011: 161), as there are in any production activity. Alternatively, a fleeting acknowledgement of knowledge transfer between travellers is the untraceable outcome.

Covering trajectories together creates joint experiences and so does facilitating such trajectories because the roads need to be built, repaired, and maintained. Passing on such accumulated expertise allows the continuation of knowledgeable and comfortable journeying as a skill and, as such, it brings along inherent prestige, resulting in, among other things, rewarding storytelling. It is in the movement from place to place – or from topic to topic – that knowledge is integrated’ (Ingold 2011: 161). Landscape features, such as roads and bridges are thus, both physically grounded entities, and simultaneously, the products of social relationships through the physical and social labour of trained and skilled people, over generations. People construct, repair, and maintain the physical nature and function of each of these interlinked features for further use in that dynamic landscape. The landscape in which past actors habited, lived, worked, and travelled could, therefore, never have been a static backdrop but needed constant attention, production, action and interaction. It is alive too, considering the seasonal affordances and restrictions that force and forge these interactions.

#### **4. Types of roads in the Argolid and surroundings, and their purposes**

According to most writers (especially Jansen 2002) there are various types of roads, paths and even highways in the Mycenaean Argolid and the surroundings. The differences between these types sit in their construction techniques, materials, along with their trajectories. The difference in construction of Mycenaean Highways and lesser roads are noted especially in the scale of effort required to build, and their width. The Highways follow the same contour throughout their trajectory (low gradient), even if this is high up on a slope. They are often well-constructed in the cut-and-terrace technique and their surface constructed using several layers. Their width varies between 2.20 and c. 5 m. They allow the passage of Heavy Good Vehicles (HGVs) for large cargoes. Lesser roads are archaeologically difficult or impossible to recognize as they consist of mostly trodden earth and can be of any width. They follow a more direct trajectory and may, therefore, cross higher slope gradients and entire mountain ranges.

The Mycenaean heartland of the Argolid has eight Highways, the so-called M-highways (see esp. Lavery 1995). These have been described in detail elsewhere (Brysbart et al. 2020) but a short overview is illustrated in Table 1. Provisional labour cost figures for the building of the M-highways are revealing. For a total length of 175 km of Mycenaean Highways, some are on flat land and some are cut into the surrounding hill slopes. It would have taken roughly 5.1 years (minimum) of construction to complete. This would have required 100 workers, working 10 hours/day for 365 days/year (details in Brysbart 2022a). To

Nbr	From	To	Via	Joining
M1	Mycenae Lion Gate	Tenea (Corinth)	Stefani, Agionori, Klenia, Chiliomodi (Tenea), Solomos	M3 (near Solomos) M2 (at Kastraki)
M2	Mycenae Lion Gate	Zygouries-Kleonai (Corinth)	Ag. Vasileios, Kephalaria plateau	M3 (at Kleonai) M1 (1.5 km from Lion Gate at Kastraki)
M3 M3W	Mycenae Lion gate	Corinth	Nemea-Tzoungiza, Kleonai	M1, M2
M4	Mycenae conglomerate quarries	Tiryns	Monastiraki, Heraion	m5 (at Tiryns), M6 (Ag. Georgios bridge), M7
M4E	Mycenae	Heraion	West of Zara	
M4W	Mycenae	Heraion	Chavos/Chonia ravine	M4 (Ag. Georgios bridge)
m5*	M1	Tiryns	Berbati, Mastos, Dendra-Midea-Kastro	M4 (at Tiryns)
M6*	Aidonia	Heraion	Phlious, Ag. Georgios bridge	M4, M7
M7*	Mycenae Lion Gate	Argos (and Lerna)	Epano Pigadi, Chania, Vathyrema W	M4
M8*	Mycenae Lion Gate	Fychtia	-	M7 (at start point)

Table 1. Known Mycenaean M-highways and m-roads reported by various sources (Tsountas 1888; Wace and Stubbings 1962; Mylonas 1966; Lavery 1990; 1995; Jansen 1997; 2002; Iakovidis et al. 2003; Simpson and Hagel 2006). \*New roads according to Lavery (1995): he also considers m5 a highway.

compare, the citadels of Tiryns and Mycenae in their entirety would have taken approximately 6 or 7.5 py for 100 people respectively (Brysaert 2020). It would, therefore, have made more sense to construct the highways over a much longer period. This agrees with Schallin (1996) and Lavery's (1990) pre-13<sup>th</sup> century BCE dates for M1 and M2. Who was involved in constructing these M-highways, or any roads in Mycenaean Greece, is unclear. There were likely people of similar status as those who were engaged in the construction of the fortified citadels known at Mycenae, Tiryns, Midea, Gla (Boeotia), Athens (Attica) and Teichos Dymaion (Achaia), who used similar construction techniques and knowledge. Many have suggested that slaves must have been conscripted, but it is hard to find convincing evidence to support this, apart, perhaps, from diachronical suggestions. Bakke (2007: 104, n. 320) seems convinced that slaves were doing the hard work on road building (and quarrying) throughout the Graeco-Roman world. He also refers to Roman army troops who set to build roads in peace time. A similar picture is known from Versailles where soldiers in peace time were converted into builders of the palace extensions (Duindam 2003).

Finally, Pikoulas (1995) describes many sections of roads dating to later Classical and Hellenistic periods illustrated by wheel ruts. Several of the Mycenaean M-highways seem, despite the chronological differences, to correspond with these roads. For example, the section from Corinth to Kleonai via Longopotamos corresponds to parts of M3 where wheel ruts were located. Wheel ruts were also found at Spathovouni, Mapsos (Corinth-Tenea road: Pikoulas 1995: 32-39), along the route from Kleonai to Nemea (Pikoulas 1995: 46-49), and at Dervenakia and Fichtia along the route from Kleonai to Argos (Pikoulas

1995: 56-61). Along our M1 wheel ruts (now destroyed) were reported at Agionori (route Tenea to Argolid). Along M2 between Kleonai and Mycenae, potential but unconfirmed ruts were noted (Pikoulas 1995: 50-53). Finally, Pikoulas (1995: 64-69) also recorded *kalderimia* (stone-paved roads) along the route from Phlious to Mycenae and Argos. The latter corresponds to the trajectory of M6.

We recently (Brysaert et al. 2020) raised the likelihood for the existence of a myriad of smaller roads and paths in the Argolid linking various places, via which people went about their daily businesses, as well as facilitating the construction of monumental tombs and citadels. In order to understand where such other roads and paths ran, we collected, for example, data on the constituent construction materials of the nine tholos tombs and the citadel of Mycenae. We focused on the limestone and conglomerate quarries, and plesia clay, used as a sealant on tholoi facades and citadel walls. The blue dots in Figure 1a-b indicate extraction places for these materials. We next observed how the extraction points and monuments related to each other, to the lesser roads, and to the known M-highways. We were fully aware that most tholoi were constructed before 1300 BCE, the century in which most M-highways are said to have been constructed (but see Lavery 1995; Schallin 1996; Brysaert et al. 2020 for a chronological discussion). We ran Least Cost Paths (LCPs; details in Vikatou and Brysaert, forthcoming) from these resources to all nine tholoi and the citadel. In comparing the LCPs with real trajectories (Figure 1a-b), only the archaeologically detected and confirmed trajectories could have been employed in transporting building materials to the construction sites. This has now been confirmed by Müller's work (2022) on the road vicinity to various tomb clusters, and additional



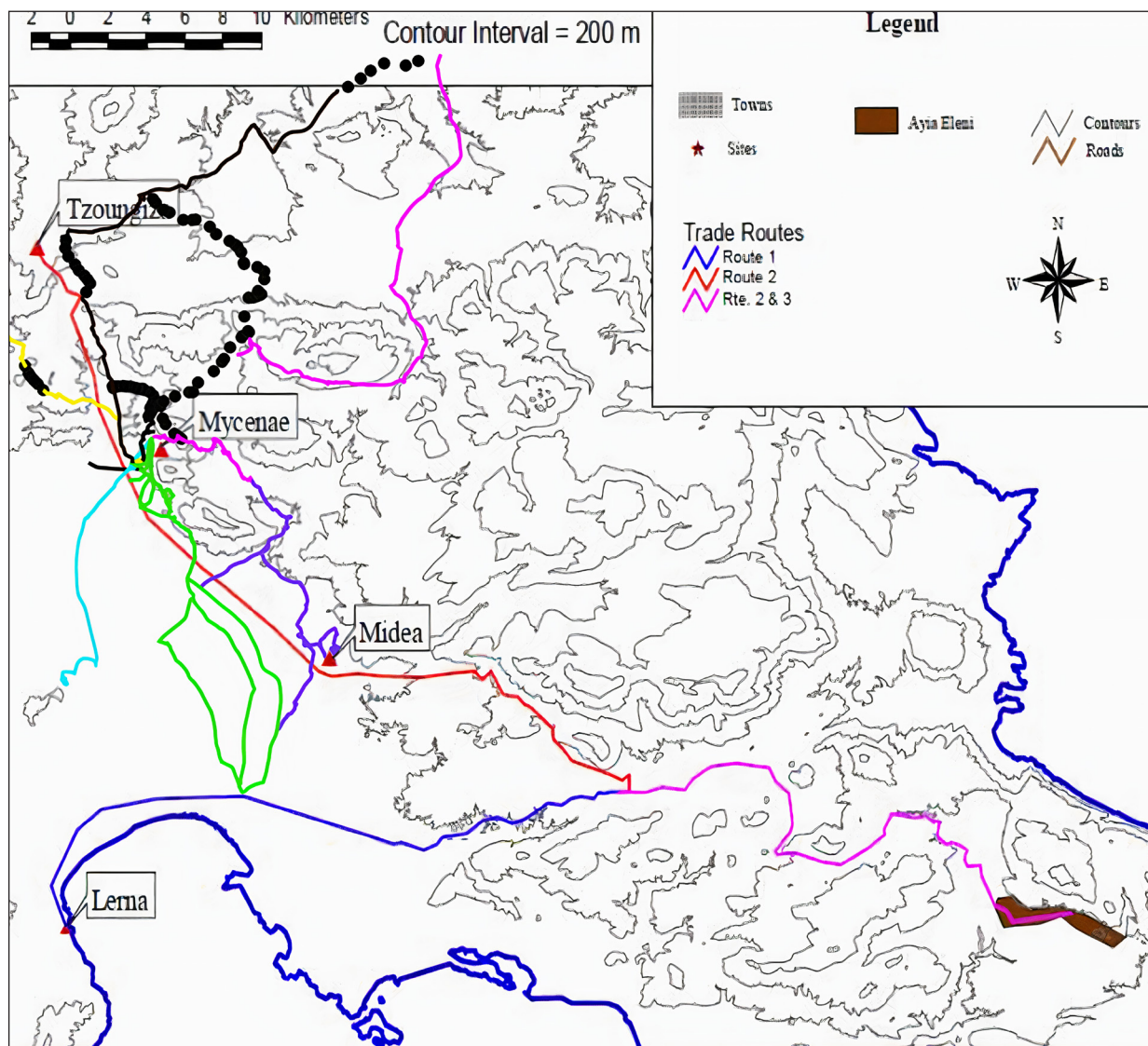


Figure 2. Map based on Newhard 2003, figure 7.1. and overlaid with our suggested Mycenaean M-highway network (see also Figure 3) in order to show the vicinity of his Route 1 (colour blue) and Route 2 (colour red) nearby the M-highways and linked to the Ayia Eleni outcrop of chert (image by I. Vikatou and A. Brysbaert).

In addition to the eight Mycenaean Highways in the heartland of the Argolid, another well-known substantial road runs from Tiryns/Nauplion to Epidauros and passes by the tholos tomb of Kazarma. The trajectory of this road (Kritsas 1973: 94), possibly constructed before LH IIIB (see Keramidas et al. 2021) is partly visible from the modern road and includes two well preserved bridges and remains of two other ones (Piteros 1997; 2006). In relation to this road, Newhard (2003) provides information on a chert outcrop in the modern village of Ayia Eleni, located near Epidauros and c.5 km southeast from the Asklepeion sanctuary. Yellow-reddish chert material is known from sites such as Mycenae, Tzoungiza and Midea, and, to a lesser

extent from Lerna. It has also been attested at Tiryns and it corresponds closely to the description of the sampling bed G 04 next to Ayia Eleni and to the description reported by Newhard (2003: 75-76. For chert objects at Tiryns from LH IIIB to LH IIIC, see Brysbaert and Veters 2010; 2013; 2015; Brysbaert 2013). Newhard (2003) proposes several routes by which this material might have been transported from the Ayia Eleni outcrop to the sites mentioned. Figure 2 shows how close his route 1 passes by Tiryns and may have connected there with M-highway 4 coming from Mycenae, or, if the material was already traded in earlier periods than the latter part of LH III, a forerunner of the M4 highway (as we suggested: Brysbaert et al. 2020). Newhard

Site name	Route 1	Route 2
Mycenae	53.04	50.14
Tiryns	37.48	43.91
Midea	43.08	36.86
Lerna	50.81	54.76
Tzoungiza	62.25	59.36

Table 2. The distance in km from the Agia Eleni chert outcrop to the sites where chert was found (after Newhard 2003, table 7.1).

(2003: 112, 121) provides the necessary support for trade in Saronic Gulf pottery and millstones between the Argive Plain and the Saronic Gulf settlements during the Early and Middle Bronze Age (e.g., Kolonna on Aigina and Ayios Konstantinos on Methana), and he believes that the chert could have been one of these traded goods embedded in the trade of these other materials between both regions from then onwards, a point we also expressed on several occasions for the use of the Mycenaean highway network (Brysbaert et al. 2020). Newhard's route 2 (Figure 2) would provide for the sites of Midea. It ran its own route from Ayia Eleni, but from Midea onwards, it roughly follows the M4 to Mycenae and from there, it skirts alongside the M2 to Tzoungiza. Table 2 shows the distances that Newhard (2003: table 7.1) calculated between the Agia Eleni quarry outcrop and the sites where chert was found (although he did not study Tiryns' chert material).

The road from Nauplion/Tiryns to Epidauros is perhaps the first *known* route that travels from Mycenae/Tiryns to the east shore of the Argolid, but others have been outlined too. Tartaron et al. (2011: 614-615, 628) and Pullen (2022) mention the access that Mycenae had to the Saronic coastline and Gulf through Kalamianos which was likely built under control of Mycenae. They describe a Bronze Age upland route being indicated by several fortified enclosures (Tartaron et al. 2011: fig. 40) along the fault line that connects the small basins in the southeastern Corinthia. This upland road would connect to Kalamianos via the dry streambed downhill for about 4 km (Tartaron et al. 2011: 615). The described trajectory serves as the main route between the Korphos area and the Corinthia and Argolid inland regions. This is based on ethnographic accounts they retrieved about an overland passage from Mycenae via the small basins and mountain passes of Sofiko, Angelokastro to Limnes and Berbati.

According to Pullen (2022), another possibly well-constructed road with bridges (but of unknown date) could have connected Kalamianos with upland Stiri (major EH occupation) via Sarakina. This allowed goods to follow this route, possibly on wheel-based transport. It would have run further north from the Nauplion/Tiryns-

Epidauros road. Kalamianos and Stiri were inhabited in the EBA and had trade contacts beyond their immediate vicinity, indicating the need for routes, at least overseas (obsidian from Melos, andesite from Aigina and other sources in the Saronic Gulf: Runnels and Murray 1983: 63). Kolonna on Aigina however, was the site best connected to the mainland for their exports of pottery, especially from the shaft grave period onwards (MH III and peaking in LH I-II; Tartaron et al. 2011: 628).

Closely linked to the upland road linking the region of Kalamianos to Mycenae via Limnes, it is possible that, at the point of Angelokastro, a road heading south and then westwards towards the (modern) village of Arachnaion, as the modern road still does. A little south of this village, remains of a Mycenaean shrine on the hill of Profitis Ilias were found among later material (Psychoyos and Karatzikos 2015: 269-270). This shrine, situated on a dominant hill and visible from Tiryns and Midea, was only 16 km away from Tiryns, 11 km from Midea, and 20 km from Mycenae, potentially serving all of the large citadels of the Mycenaean heartland. Another road heading south from the village of Arachnaion possibly linked to the Nauplion/Tiryns to Epidauros road at the crossing near Chani Mercouri or Ligourio.

Other potential roads from within the Argolid linked to the surrounding regions. One possible road connected Lerna with Sparta, crossing over the Helikon mountains (Pritchett 1980: 140; Krigas 1987), while Krigas (1987: 81) also mentions another road that would have gone through Anthana and Neris to connect both Lerna and Sparta. This has not been elaborated on further though (see Mason 2007: 36, fig. 1). Bakke (2007: 102)<sup>1</sup> is not convinced that there would have been a network of Mycenaean roads in Arcadia as suggested by Krigas (1987). Bakke (2007: map 3) may be correct that there were no engineered roads in Arcadia apart from the small section at Khoma, and a few others. In following Jansen (2002) he sees the M-highways around Mycenae for local purposes only, i.e., transportation of agricultural and pastoral produce to the centres 'by means of beasts of burden rather than by wheeled carriages' (Bakke 2007: 103). We, however, believe that the M-highways functioned well beyond the local network (Brysbaert et al. 2020). The problem is that the wheeled carriages seem to be understood mainly as chariots while much heavier vehicles were mentioned in the literature (discussed in Lavery 1995; Brysbaert et al. 2020) for the transport of large cargoes, building stones and wood logs. In a detailed description of roads in Arcadia, Bakke-Alisøy

1 Jørgen Bakke and Hege Bakke-Alisøy have been carrying out survey work in the region of Doliana and Tegea for many years and published recently a new interdisciplinary methodology to recognize roads as part of their surveying work, see Bakke and Bakke-Alisøy 2020 for details.

(2016: 6) follows Bakke (2007) in expressing a steep road gradient for carriage roads while roads/paths for foot passengers with beasts of burden would follow contours up and down the mountains. There seems to have been confusion between road and slope gradient, though. The road gradient for any type of carriage, especially when pulled by oxen or other animals with a heavy load cannot be steep because the animals would not be able to cope with the pressure of their load downhill (Brysaert et al. 2020; see also Efkleidou 2019: table 1). This is one of our arguments in favour of the gentle *road* gradient we noted in several M-highways. While these ran often on high *slope* contours, they did so consistently, allowing the transport of heavy cargoes, such as building materials in stone and/or wood (Brysaert et al. 2020; Brysaert 2022a). In Mycenaean contexts at least, beasts of burden (oxen) and four-wheeled wagons are combined. Bakke (2007: 112ff) also discusses road use as a function of large-scale stone transport of Doliana marble (see below).

That not all large roads were constructed as highways is clear but there nevertheless must have been larger roads, perhaps widened paths, for the transport of cargoes to other regions. For example, Bakke's (2007: 125-126) Peloponnesian Highway which he sees crossing the Peloponnesian north-south from the Isthmos to Megalopolis, seems remarkably like the road which ran from the Isthmos to Sparta and passed by Lerna (Bakke-Alisøy 2016: 12-13), and possibly via Argos, as Krigas (1987) pointed out. Wheel ruts indicate their use from the Classical period onwards when this technique was introduced and copied into Greece from the Persians (Bakke-Alisøy 2016). Both Bakke (2007) and Forsén (2003: 83) believe that this Highway dated to the Bronze Age, or even earlier, and Forsén talks about a Highway going through Asea, passing other settlements of the valley. Bakke-Alisøy (2016) even sees the possibility that the use of this Peloponnesian Highway may be datable to the EH period, connecting Tegea to the Gulf of Argos, the Plain of Asea, and the Plain of Mantinea. Bakke-Alisøy (2016) describes other local networks in addition to those described by Bakke a decade earlier. From this, it seems that several local networks, i.e., in every direction in-and-out of Tegea, around the Doliana valley, and through several other regions. All eventually link to larger roads, such as the Peloponnesian Highway. The latter thus connected Sparta with Argos, and a major crossroad at Stous Phonemenous that also fed roads leading to Analipsis on the plain of Karyai. Bakke-Alisøy (2016: 10) calls Analipsis a highland node in an ancient network, where roads east-west and north-south crossed, possibly existing in prehistoric times (Forsén 2003: 64, 67).

In relation to building materials, specifically to marble stone transportation, Bakke (2022) refers to a road, in use from potentially the Bronze Age to the Medieval times. In

fact, he goes as far as suggesting that the road was built in order to bring the Doliana marble (in the north Parnon) to Tegea in the Archaic period so both building projects (temple and road) coincided. He also notes that there were Late Bronze Age settlements (e.g., Mirmingofolies) in the Doliana valley:

'The Late Bronze Age material was also recorded in close vicinity of the modern dirt road from Psili Vrisi to Vervena (Bakke-Alisøy 2016; Bakke and Bakke-Alisøy 2020: 42). From the *Agios Panteleimon* pass the route along the dirt road from *Psili Vrisi* to *Vervena* would easily have interconnected with the important Bronze Age site at *Analipsis* on the border between ancient Arcadia and Laconia. Finds from *Analipsis* go back to the Neolithic period (5th and 4th millennium BCE) and extend into the Medieval period, probably into the 13th century CE [...]. This indicates that the route from the lower Doliana Valley through the pass of *Agios Panteleimon* towards *Vervena* was established at a very early stage in the history of settled occupation of the inner Peloponnesian peninsula, and that its importance persisted throughout its premodern history[...].'

Later, Bakke (2022, see also Bakke and Bakke-Alisøy 2020) notes: 'The route from Psili Vrisi to the Agios Panteleimon pass is also most likely the transportation route from the Tegean plain to the quarries in antiquity'.

A final route may be extracted from a recent paper (Buckley et al. in press) which brings together evidence of the use of charcoal in the Late Bronze Age East Mediterranean, based on the recognition of lignite in dental calculus analysis. Evidence of lignite at Tiryns suggests that wood from the region of Olympia was used. While bringing the wood itself to Tiryns from Olympia is not suggested here, at least the charcoal, probably produced closer to the wood source to avoid long-distance heavy transport, must have travelled from Olympia to Tiryns during the LBA. This likely was carried out taking the road from Olympia in the direction of Tripoli or Mantinea towards Lerna and Argos, and, as such, tying into the network again described by Bakke (2007) and Bakke-Alisøy (2016).

Finally, hidden in her publication on Arcadia, Salavoura's (PhD 2006, published in 2015) work somewhat cuts off the Argolid from her map in which a wide network of roads is indicated for Arcadia and beyond. Her research into Arcadia ran simultaneously with the work by Bakke (PhD 2007). In appendix 2, she describes the Mycenaean roads in Messenia, Attica, and Boeotia, and gives a summary of known data on four of the eight M-highways in the Argolid, known as M1-M4, and the Nauplion-Epidauros road. Roads m5, M6-8 are not mentioned in her work despite their description in Lavery (1995). As we did, Salavoura mentioned the difficulty in dating roads directly without thorough excavations. However, indirectly, several strands of information are

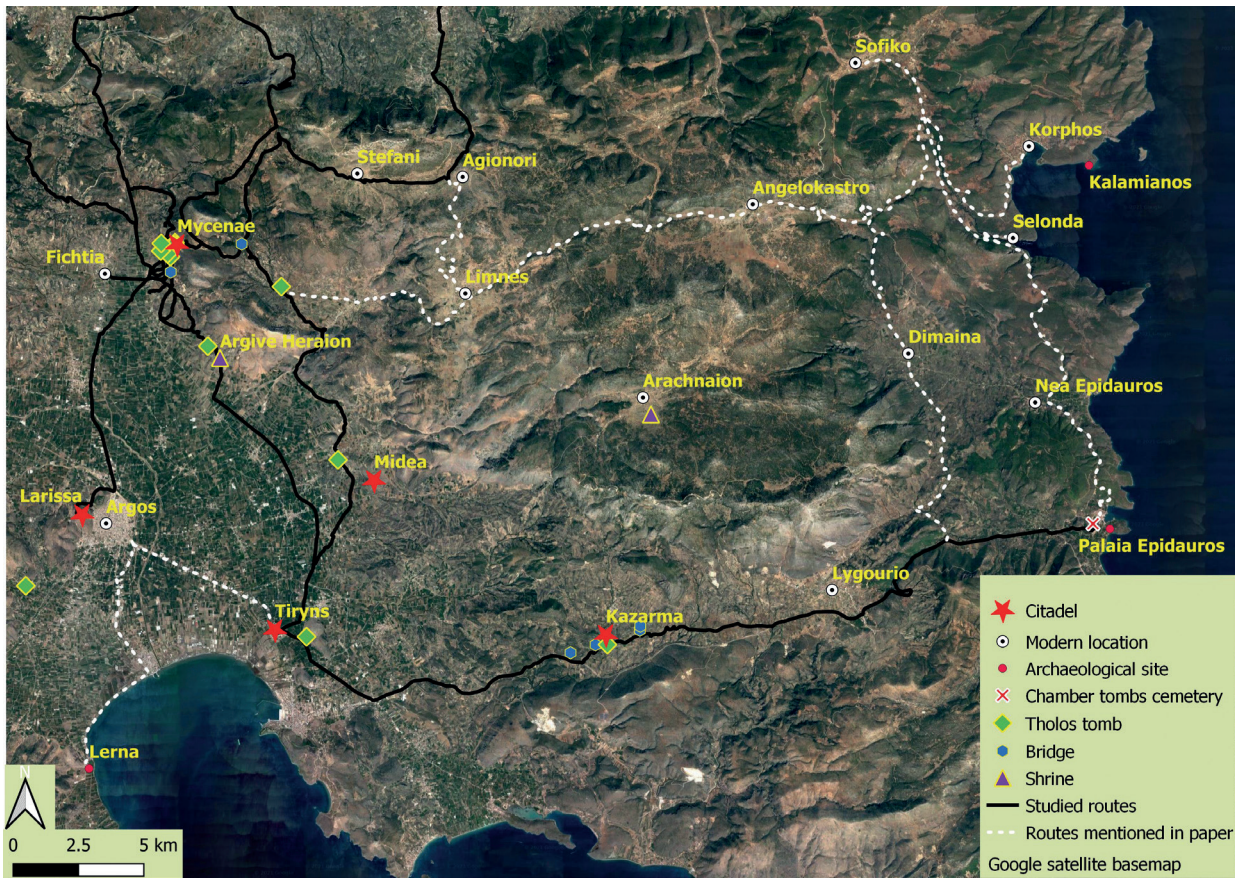


Figure 3. Map of the northeast Peloponnese indicating Mycenaean highways and other roads mentioned in the text (map by I. Vikatou and A. Brysbaert). Imagery ©2022 Google, Data SIO, NOAA, U.S. Navy, NGA, GEBCO, Imagery ©2022 TerraMetrics, Map data ©2022.

useful, such as the construction materials and techniques (massive Cyclopean blocks for bridges, curbs, and culverts, not known after the end of LHIIIB), and the fact that they link places of Mycenaean interest and material culture, as Bakke (2007), Bakke-Alisøy (2016), Pullen (2022), and our paper (Brysbaert et al. 2020) have amply indicated.

## 5. Discussion

While already over 30 years old, the paper by Sanders and Whitbread (1990) on graph theory and early Network Analysis of (1) the Peutingeriana map, (2) written accounts of ancient travellers, and (3) 19th-century travellers and their writings on the Greek roads they travelled following Pausanias, shows that many routes in the varied landscape of the Peloponnese have not changed much since antiquity. These routes seem very persistent but are not static features. Where the routes did divert, though, the few kilometre shifts, noted by them, are explained by changes in the concentration of settlements. Courses of rivers were followed and crossed at ancient bridging points and fords, and trajectories followed, where possible, coastal plains to

avoid the difficult mountainous interior. Beyond the shift of some routes, the importance of the nodes themselves changed in response to the development of settlements over time and their importance (Sanders and Whitbread 1990: 345), an entirely logical observation. Some of their useful results were that, in general: (1) the road system alone was not indicative of relative centrality; (2) distance in terms of travel time was not a direct constraint on accessibility; and (3) a specific place may have little significance in a small area but may be far more important within a larger network (Sanders and Whitbread 1990: 349). These points are discussed below in relation to the Mycenaean road data.

In the northern part of the Peloponnese, several central nodes were recognised on the basis of roads leaving from, arriving at and passing through Mycenae, Argos (Figure 3), but also Analipsis (see Bakke-Alisøy 2016). What each of these nodes and central places indicate is that a very interconnected road network criss-crossed larger parts of the Peloponnese in Mycenaean LBA times, and perhaps even earlier for many different reasons. The (eight)



Figure 4. Captured image based on Google Earth showing a dense network of paths leading from the Korphos region towards Epidauros on the mountain slope, nearby the modern Selonda Bay (image by A. Brysbaert). Bilder ©2022 Google, Bilder ©2022 CNES / Airbus, European Space Imaging, Maxar Technologies, Kartdata ©2022.

Mycenaean Highways in the Argolid were certainly part and parcel of this road network during the LBA. Many goods and people had to be transported from and to the Argolid centre of Mycenae and other nearby citadels. These M-highways and other roads were not just there for a single purpose, as many have amply demonstrated (Pullen 2022; Bakke 2007; Bakke-Alisøy 2016; Brysbaert et al. 2020). Both Bakke and Bakke-Alisøy, and Pullen (2022) clearly discussed the existence of roads in terms of establishing connections between settlements and other places. The site of Analipsis was an important node, just as the invisible marketplaces were (Pullen 2013). In doing so, they also took environmental factors into account: people avoided marshy land (Mantineian Plain), made good use of vantage points (intervisible sites upland from Kalamianos), dealt with natural erosion (through road maintenance during winter periods), looked for waterways, and various other natural aspects of relevance to travel. Such natural factors cannot be seen separate from the reasons for and how to travel, and from movement over a criss-cross network of tied-in roads, paths, and the M-highways. For example, the road, described by Tartaron et al. (2011) and Pullen (2022), out of Stiri near Korphos heading westwards, could have linked with the Mycenaean Highways a little south from the M1 at Limnes, from which a small zigzag road ran north to Agionori, and then on west towards Berbati. Pullen (2022) also mentions an extensive network of paths and routes in the inland interior of the Korphos region well above

the coastline. Along the same vein, Google maps show an equally dense network of paths leading from the Korphos region towards Epidauros close to (modern) Selonda Bay (Figure 4). All these may have served terraced agricultural land. It seems very likely that there was also a good road between Kalamianos and Epidauros following the coast, possibly not far from the modern road from Epidauros to Isthmos, crossing the riverbed just west from Selonda bay, to then link up, via the dense network of paths, with the older Korphos road. Pullen (2022) has suggested another road, further inland, running more or less parallel, between Korphos and Epidauros via Dimaina.

Some of these roads may have taken the traveller faster to their destination than others as is clear, for example, from Newhard's distance calculations when comparing his routes 1 and 2 (Table 2). However, the distance, in a mountainous region, is not necessarily an indicator for speed and, as previously mentioned, people travelled on specific roads for specific reasons, whether that reason was economic or not. Moreover, travel time should not be seen as 'dead' time. Instead, embedded activities and learning about places and people are central to the success of the journey. Taking time allows people (at different scales and speeds) to gather information and goods, to work (network), connect, socialise, learn, share and exchange, and enjoy and anticipate while journeying (Brysbaert et al. 2020). These cross-over activities, the meeting of others, and looking after each other while

going about daily tasks are central themes of this paper. For example, Newhard (2003) pointed out that travelling just to distribute chert to various sites would not warrant the effort. Instead, the likelihood that other very durable materials, such as andesite and Aiginitan pottery, were also brought on these trips is high. Less durable materials may have travelled too or may have even been the prime reason for these journeys. Two separate roads, heading inland and eastwards from the two harbours (Kalamianos and Epidauros) where Aiginitan goods would first arrive onland, would facilitate their distribution onwards, and also Pullen (2022) mentions andesite as possibly being used as ballast for ships arriving at Kalamianos. Aiginitan pottery only declined around 1400 BCE when Mycenae's pottery took over, thus highlighting the then dominant settlement in the region with its expanding and developing road network. Kalamianos was of enough importance to Mycenae around 1300 BCE to have its port town architecturally planned and built in one go (Tartaron et al. 2011: 630-631; Pullen 2022). This reflects an interest in the coastal settlement by Mycenae prior to 1300 BCE, thus confirming the existence of a road between them prior to 1300 BCE. In a similar vein, the road from Nauplion/Tiryns crossed over to the Saronic coastline bringing and receiving goods from there. Aigina could thus ship its pottery to both Epidauros and Kalamianos for overland distribution into the depth of the Argolid, and on from there. It could thus reduce and spread the risk of losing access (or a cargo underway) by dividing its transport through two different harbour points.

Travelling, when done by experienced voyagers, is a knowledgeable form of performing, through which people and places connect, as they also do through building (Brysbaert 2018). Building materials, as previously discussed, likely travelled along the same routes as other cargoes that travelled between Tiryns and Mycenae, and Bakke (2007; 2022) comes to similar conclusions concerning the Doliana marble material. Therefore, several intersecting levels of mobile people and their belongings can be traced, illustrating the complexities of human interactions with non-human beings and materials whilst on the move (see Sheller and Urry 2006: 208-213). In our modern perception, embedded activities may perhaps save time, but the actual trajectories taken may have made the journey longer, and for good reasons. Travel time, therefore, was likely not the most determinant issue in choosing the road taken, rather travel comfort *for all parties* (human, animal, and breakable produce) seemed to have been the priority until the arrival of motor-driven vehicles forcing changes in the road type, construction techniques, and materials. Any beast of burden, whether ox or donkey, was an asset not to be wasted as livelihoods would have depended on them. These animals, furthermore, set the rhythm and speed of the journey, thus also its duration

(see Gooch 2008). And that, again, depended on the road type taken.

Mycenaeen Highways were hardly the common road type in the Argolid, as outlined above. Only a handful of constructed roads have been recognized: eight M-highways around Mycenae, the road between Tiryns/Nauplion to Epidauros, a small section near/on the Dam (Khoma) in Arcadia (Bakke 2007) and some traces near Kalamianos (Pullen 2022). Only the M-highways followed the same contours along hill slopes but smaller roads and paths took higher road- and slope gradients into their thread. These smaller roads and paths could easily take people and smaller pack animals (donkeys, mules) and were comfortably accessible for travellers on foot. It is, therefore, not a surprise that the road from Epidauros heading inland crossed at least three bridges. It likely thus formed another constructed M-highway as some cargoes using it must have been substantial enough to warrant a wider (constructed) road and beasts of burden to take them to their destination. One would expect a similar road leading from Kalamianos to Mycenae but the topography in between is more challenging than that between Nauplion to Epidauros. Having said this, as Pullen also pointed out here, there is much more in the region that still needs exploration.

Beyond people's mobility in their taskscape where people produce while looking after each other (Ingold 1993), knowledge of roads is important to get about and (inter)visibility is instrumental in achieving this knowledge. Mason (2007: 39-40) argues that the location of the Treasury of Atreus was based on the local topography of Mycenae and that the tomb was visible for anyone coming from the southeast or southwest along certain M-highways, but also from the northeast, and from within the citadel itself.<sup>2</sup> Especially the link with the surrounding (landscape) features, such as the gorge of the Charadros river (Mason 2007, 46-47, 49, fig. 11) is convincing, and as such, he links the natural and built environment. The same visibility was noted for the citadel from various viewpoints along roads leading to Mycenae while Efkleidou (2018) noted intentional *invisibility* of the Lion Gate from all roads surrounding Mycenae. Our work on Mycenaeen roads in the region has taken visibility and especially points of intervisibility of both sites and natural features (hilltops) into account while being aware that visibility may alter seasonally and over longer periods of time due to erosion, changing vegetation patterns and landuse, along with changing coastlines (known from Tiryns: Zangger 1993). For example, mount Arachnaion as the location of a Mycenaeen shrine is clearly visible

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2 Contra Efkleidou (2017) who argues that this is not possible due to the height of its walls, and that the Atreus Treasury is only visible from the court in front of the megaron.

from Tiryns and Midea and all along the route from Argos to Mycenae until Fichtia. At this point, Arachnaion disappears behind Mount Zara, and Mycenae (with its own shrine/sanctuary) becomes clearly visible.

Visibility was not just useful to find and reach a destination; navigational landmarks could fulfil other purposes too. Even if a trajectory is considered to be located through a well-trodden region (e.g., between Tiryns and Mycenae), so that no landmarks would have been needed for wayfinding, it might still be useful to realise what people could see as landmarks. Argos, already an important settlement in the MH period (Papadimitriou et al. 2015), and marked by the Aspis and Larissa hills, was always in view and so were the Palamidi and Acronafplion hills. Next to Mycenae and Tiryns many locations were well-established places over time and, in different ways, each indicating an accumulation of different routes and road types in their respective surroundings which showed their connection to each other and many other places in the well-trodden region. Tiryns, for example, interlocked both sea and land travel, and Mycenae formed a perfectly protected locale with a dense node of routes in and out of its valley.

Beyond their visibility, landmarks helped people's memories on how to reach a destination, but such persistent places in the landscape could also form nodes in people's social memory, whether based on natural features or built ones, such as the Arachnaion shrine mentioned above. Gosden and Lock (1998) refer to sites being constantly reworked, and a very useful example is the site of the Tiryns LBA citadel, remodeled and revisited repeatedly since its first monumental construction in EH II-III in the shape of the Rundbau (Maran 2016 and Brysbaert 2018). That genealogical memory could stretch back over extended periods (oral transmission alone can reach back two centuries: Bradley 2002: 8; Whittle et al. 2011: 3), is also attested in EBA-LBA Britain (Gosden and Lock 1998: 8). Another clear example are the roads: when not maintained and looked after throughout the seasons by people who knew what they were doing and what that meant for the overall benefit of society – thus creating bonds between them – the routes would never have afforded the megalithic blocks that they allowed to be transported from Mycenae to Tiryns. One could even go as far as to say that these megalithic block cargoes are the proof of close social ties of communities at work in the region, and the importance they gave to the work they did for the community. Santillo Frizell (1997-1998) has illustrated well what such transport may bring about in people's social memory. This is where the people involved in transportation would actively interact with their environment (see also Slayton 2017, but contra Ingold 2011: 149-150) and with each other, while having, and because of having, a specific destination in mind

for their cargoes. The need to transport these cargoes, especially when large and heavy, would have requested specific negotiations with the surroundings: the least slope gradient to traverse (see M1, M4 and M6: Brysbaert 2022b), where possible the shortest route, water holes and resting places for the animals along the route (M4). And perhaps there would even be an obligatory stop imposed by others: for 'live performance' purposes near some of the magnificent tholoi (after Santillo Frizell 1997-1998), to honour their ancestors (e.g., Galou 2005), or to attend and participate in rituals at the hilltop shrine (on Mount Arachnaion).

As physical entities such as roads and bridges are the grounded products of the physical and social labour relationships of generations of skilled workers and their apprentices, forming a taskscape. As much as people and their relations are dynamic, so are the landscapes these people transform, since the roads needed constant attention and maintenance, and people change with them each time they traverse these roads. Equally, the physicality of stone quarries change shape as they are being reduced in size and volume, and once abandoned, they may overgrow. This physical change was clearly visible at the conglomerate quarry sites at Mycenae (Brysbaert et al. 2020). Also, agricultural surroundings, such as terraced fields, are alive as hinted by their seasonal opportunities and restrictions that are part of human-environment interactions. While people and their animals are the most obvious actors, we cannot underestimate the agency of their surroundings, built or not.

On a more regional and diachronical level, it is fair to say that the constant or recurrent labour input of route maintenance and construction, combined with their constant or recurrent usage over time, makes roads persistent features, right up until modern times. In this context, the M-highways around Mycenae may have become more of a burden to later generations of elites over the following centuries, especially in being able to mobilise the needed labour to access materials in order to maintain these roads. When left unattended, such maintenance costs would quickly accumulate and therefore not warrant keeping these roads in use. In contrast, the smaller roads and paths, employed on a daily basis, once the palatial elites were no longer in charge after 1200 BCE, were easier to maintain; they have always been. This ties in nicely with the observations made by Sanders and Whitbread (1990: 345) in which roads may shift a few kilometres over time in relation to a site of importance. Once Mycenae lost its importance, the M-highways may have been, temporarily, out of regular use at least by the elite members of society. Lavery, however, did mention some continuity until Mycenae was conquered by Argos, and these roads were likely used for several non-palatial purposes, as they were before. Road shifts are thus recognised here, and an

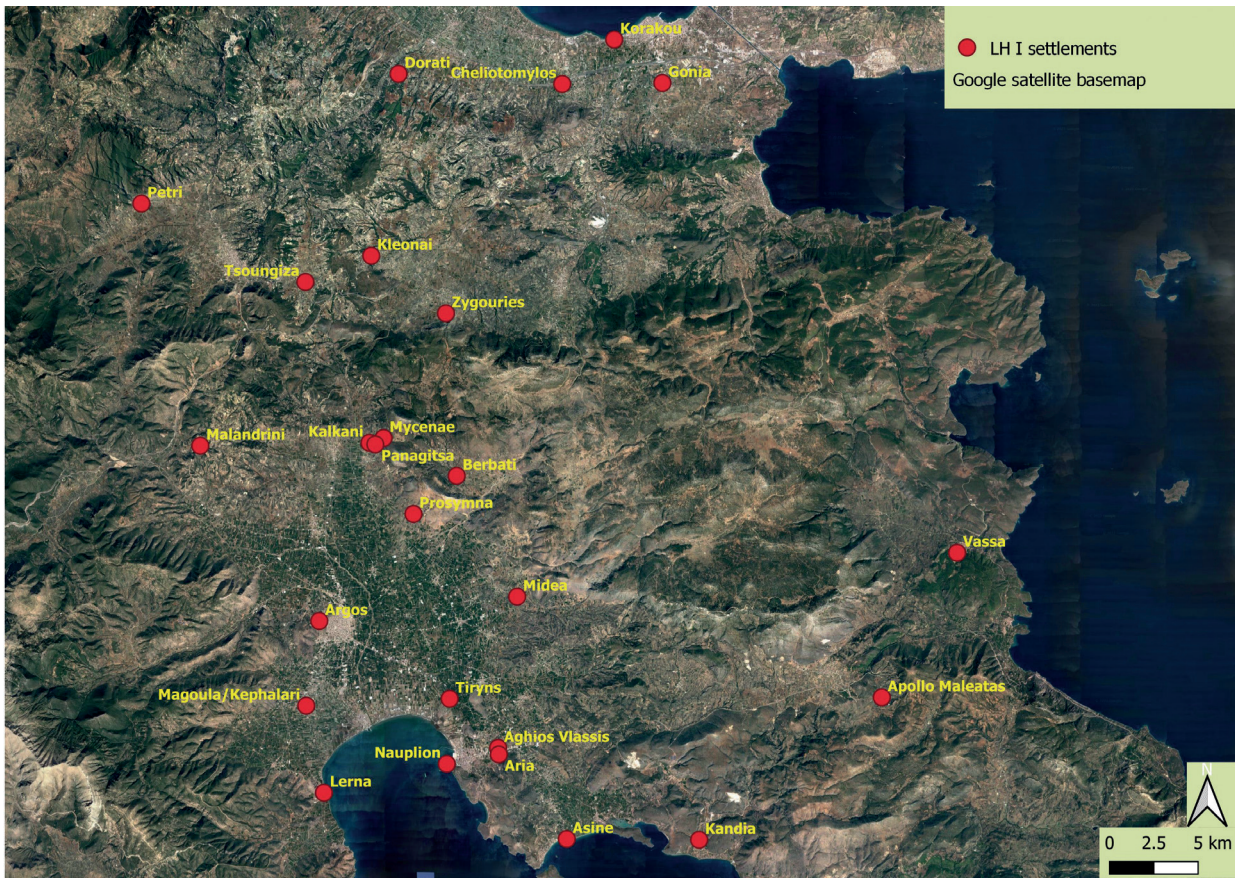


Figure 5. Map indicating the non-exhaustive spread of settlements, cemeteries and various other site types for the period of LH I (map by I. Vikatou and A. Brysbaert, based on data from Bintliff 1977; Davis 2004; Jameson et al. 1994; Nakassis 1916; Schallin 1996; Simpson and Dickinson 1979; Sjöberg 2004; Tetford et al. 2018; Wright 2004; and many reports in *Archaiologikon Deltion*). Imagery ©2022 Data SIO, NOAA, U.S. Navy, NGA, GEBCO, Google, Imagery ©2022 TerraMetrics, Map data ©2022.

important road from Argos to Lerna and towards Sparta (Krigas 1987; Bakke 2007) seems to confirm this shift of site importance from Mycenae to Argos after palatial times.

Kirby (2009a: 8) states that socio-political topologies of hierarchy (and exclusion through elite control, level of visibility and surprise-awe factors), are helped and encouraged by control over infrastructure in empires since roads and paths are connectors: they facilitate access and cross boundaries, if allowed. Simultaneously, roads and paths can also restrict because forming such paths/roads, especially under elite sponsorship, can impact the landscape with its resources and people, for the purpose of domestic stability and geographical advantage. Inter-visibility plays a key role in the impact that routes have on people's use and circulation in the landscape. We referred to this, following Jansen (2002), as a clear indication that Mycenae must have played a more dominant role in the northeast LBA Argolid as so many of the constructed roads led to and from there, when compared to those from and to Tiryns and Midea respectively. In this sense, perhaps

the Mycenaean shrine at Arachnaion was not to compete with the one at Mycenae, despite its most prominently high location. As mentioned above, the shrine was likely accessible via Angelokastro travelling south, and then west to modern Arachnaion, or when following M1 and descending south from Agionori towards Limnes and south from there towards a still existing track which connects Arachnaion with Midea. People from Tiryns could also reach it from there, or they could travel along the route to Epidauros and then head north up from there at the height of the Acropolis of Kazarma or further east (between modern Chani Merkouri and Ligourio) – although from there, they would have to cross the Arachnaion range at a height of c. 850 m to reach their destination. Near the shrine area, one could easily imagine processions and larger groups of people using these roads to travel there on appropriate days. All roads considered, several larger and smaller ones, seem to circulate the shrine locale making it a central and very visible place, and could be relatively easily reached from each corner of the northeast Peloponnese

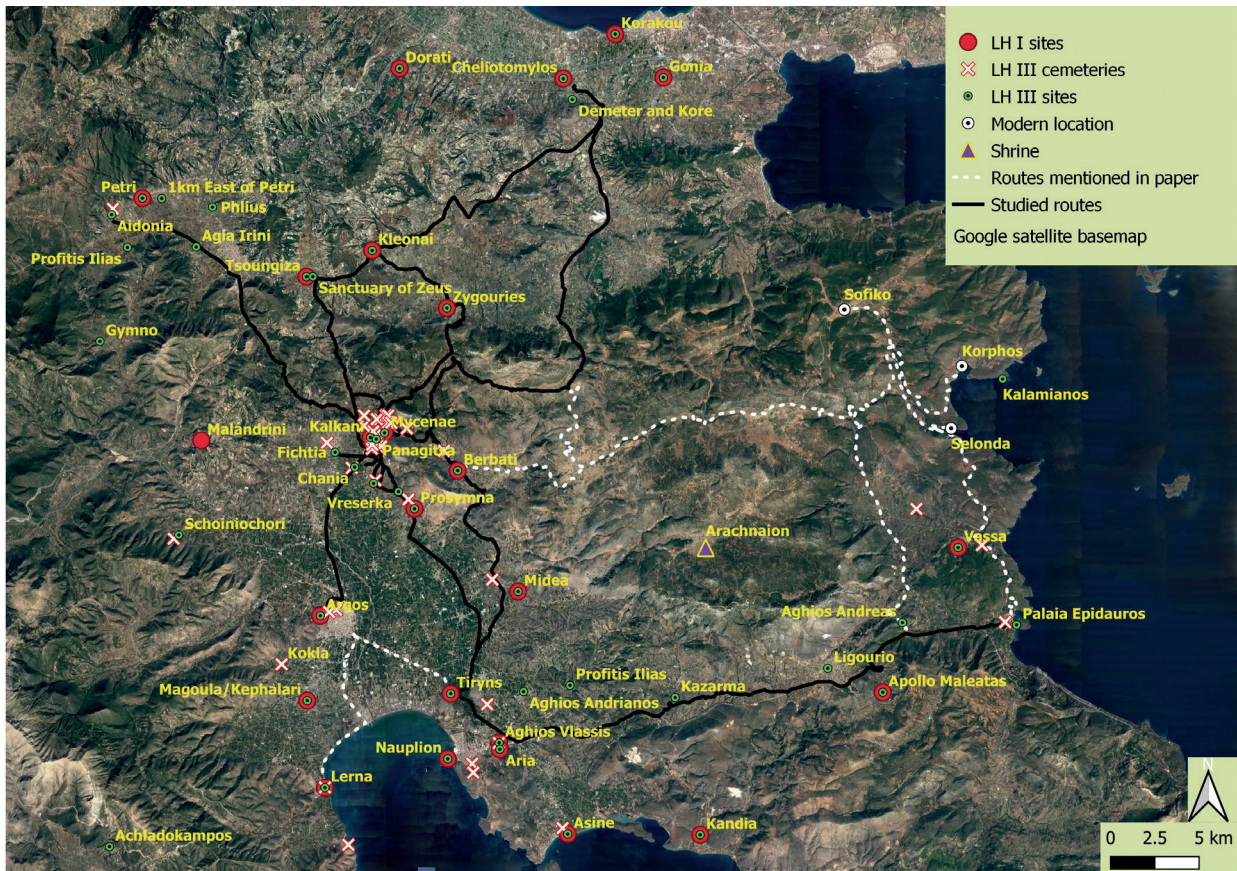


Figure 6. Map indicating the non-exhaustive spread of settlements, cemeteries and various other site types for the period of LH III in relation to the plotted M-highways along their currently known trajectories (map by I. Vikatou and A. Brysbaert, based on data from Bintliff 1977; Davis 2004; Jameson et al. 1994; Nakassis 1916; Schallin 1996; Simpson and Dickinson 1979; Sjöberg 2004; Tetford et al. 2018; Wright 2004; and many reports in *Archaïologikon Deltion*). Imagery ©2022 Data SIO, NOAA, U.S. Navy, NGA, GEBCO, Google, Imagery ©2022 TerraMetrics, Map data ©2022.

by using the existing road network. As such, mount Arachnaion could not be an indifferent place (Bachelard 1994: xxxvi), or a passive backdrop for activities, as any place is defined by movement. The repeated experience of passing by the Arachnaion mountain in this landscape was linked together with traffic between home and work, trade and commerce, and, as such must have included specific memories; triggered by seeing the shrine landmark on one's mental map. Activities in the shrine may have linked themselves to past activities/events (funerals, processions), and the persistence of routes encircling the mountain may be an outcome of these processes.

The existence and use of the lesser roads is linked to the chronological discussion of the Mycenaean Highways (details, see Brysbaert et al. 2020). Not everyone agrees that all M-highways were constructed in the 2nd half of the 13th century BCE. Especially Schallin (1996) already opted for an LH IIIA date for M1 and Lavery (1995) maintained that M2 was even older. Also, M4 seemed to have existed before 1300 BCE. The spread of settlements, cemeteries, and

various other site types for the periods of LH I versus LH III is revealing in relation to the plotted M-highways along their currently known trajectories (Figures 5-6). In order to reach and connect these places, lesser roads had always been crucial since harvest collection and the trade and transport of material resources were certainly present in the region before the M-highways were in existence. Also, burial rites and transporting bodies to the tombs was a regular affair which needed proper access between the settlements and tombs, these existed well before the M-highways were constructed (Efkleidou 2019 on reaching the chamber tombs at Mycenae; Brysbaert et al. 2020 especially on the tholoi; see also Müller 2022). As expressed before, we believe that the M-highways must have been based on pre-existing roads that were both widened and monumentalised from 1400 BCE onwards, perhaps starting with M2 and M4, and followed by M1, in order to allow for Heavy Goods Vehicles which needed wider road surfaces for their cargoes, next to their continuous use for other activities. This trend was continued once monumental building was restarted in the

Archaic period when quarries, roads and building sites were closely linked (Pakkanen 2021: personal communication). Bakke's work on the Doliana marble also confirms such observations for Arcadia.

## 6. Conclusions

This paper aims to construct a fuller picture of multiple human – animal – material/immaterial resources, mobility patterns which shaped and were shaped by both the road types in existence, on the one hand, and other more immaterial infrastructure (mental maps based on intervisible landmarks) on the other, in the LBA Argolid region and its surroundings. People there went to work (building, agriculture, crafts), and were involved in trade and commerce (e.g., Pullen 2013 on markets). People carried out military operations (coast guarding, food transport protection), used roads in rites of possession and division, and took part in socio-religious activities (buried relatives, visited shrines). The purpose of the journey, combined with the natural environment dictated how and when people moved, and the time they took for travel. The relationship between the four main Mycenaean highways (M1-M4) and agricultural activities such as collecting and transporting harvests to Mycenae's citadel has been mentioned by Jansen (2002), Lavery (1990; 1995) and others. Lavery's (1995) expansion from four to the eight M-highways was not excessive considering the number of roads, highways or otherwise, described here, that were accessed in the LBA, or well before that, in the Argolid and surrounding regions.

Studying the multiple overlaying networks of Mycenaean roads and paths of the past (and more recent ones) in the landscape can highlight several aspects of human economic, political, ritual and social activities. The nodes through which several of these roads may have led, may give indications about the importance of such nodes. The more roads that go through a place, i.e., Argos, Mycenae, the more connected it will be and this will reflect in its overall importance to the surrounding places situated along these roads. In political-geographic terms, the Mycenaean Highways together show the extent of the potential connections, and influences that the three major citadels had together, either under Mycenae, or each in their own way as competitive entities. The costs in their construction indicate efforts well beyond the local community level in terms of coordination, execution and sponsoring. They also highlight those who benefited most when they were in use: the grandeur of the roads and what they claimed alongside: far-reaching territories, power visible in their monumental character and scale, access and perhaps control over labour forces that could also be used for military efforts when needed. But when combined with the entire Mycenaean road network, the full extent of people's daily activities came into view and

eventually led to the concentration of Mycenae's might, at least temporarily during LH IIIA-B. Choosing to spread such construction efforts over time, or using more people to finish the job at hand may have had very different effects on managing many other large-scale projects, while other tasks such as house building, agricultural activities, and multiple craft productions still needed to be carried out too. If the M1-2-3 were potentially also employed (and even partly constructed) for stone transport and other heavy cargoes, they would have been multifunctional too, and the stone transport from Skaloma to Mycenae seems to suggest that this was the case (see Brysbaert 2022a).

Smaller roads would have to have been connected to these M-highways or their predecessors to reach every corner of the agricultural land and connect it to Mycenae as its final destination. Other substantial cargoes could also be transported along them, such as pottery and other goods. Finally, the intervisibility of landscape markers, which would have facilitated people's travel, as we noted on our walks, was crucial. While walking, the mountains surrounding Mycenae along the M6 only disappeared from view when those near the Kelossa pass became visible. These led the travellers clearly on to their final destination. A similar pattern was noted in relation to the intervisibility between mount Arachnaion and two of the three major citadels in the Argolid. The most static of things in our minds, a place, is defined by its opposite, movement, and necessarily so. This goes to show that the environment in which past actors habited, lived, worked, and travelled, could never have been a static backdrop but needed constant attention, production, repair, action, and interaction. Such a taskscape is fully alive, as already hinted at by its seasonal affordances and restrictions that force and forge many of its interactions.

In plotting the numerous roads mentioned in the literature, along with newly suggested ones (Figure 5), it became clear that the people in the Argolid and surroundings, their animals, and their material resources were very mobile indeed in the final centuries prior to the demise of the Mycenaean societies around 1200 BCE. Many of their activities continued well after 1200 BCE and the persistence of these led to the longevity of the roads, paths, and other places; in some cases until the present day. The long-term use of some of the roads discussed here are the grounded and materialised dynamic outcome of people's ever changing taskscapes, of multi-generational work, physically on the roads themselves, as well as the execution of many other jobs that required access to these roads via wayfinding, based on mental maps of navigational landmarks.

It is a skill to be able to read the road, to navigate it well, and to be sure of where it will end, if that is the purpose of the journey. Passing on these skills while travelling

created worthwhile experiences and these, in turn, drove the transfer of skills over the generations. When people pass on their accumulated expertise, they also allow the continuation of knowledgeable and comfortable journeying – as a skill. Experienced journeying, for whichever purpose, may bring prestige and may also result, if you are good at it, in rewarding storytelling. ‘It is in the movement from place to place – or from topic to topic – that knowledge is integrated’ (Ingold 2011: 161). As understood in repeated practices when mastering any craft, persistence is the message. This message was and is carved in the physical and mental road map of the Mycenaean landscape of the Peloponnese.

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