

# An Overview on Ancient Quarries of Southeastern Attica

## The Ancient Quarries of Hymettus Revisited<sup>1</sup>

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## ABSTRACT

*Based upon the information about the quarries of southeastern Attica presented in Kokkorou-Alevras et al. (2014), the research group of the National and Kapodistrian University of Athens has tried to throw light on the quarrying activity, that took place in these quarries during the antiquity and to update, to a certain degree, the data from past publications. New investigations were conducted in areas where ancient quarries had been located in the past (e.g. in Rhamnous, Marathon, Brauron, etc.) and important knowledge has been added about the quarrying activity of that region in antiquity. Our research focused on the Hymmetus marble quarries and was based upon both a new systematic investigation of the ancient quarry-faces on mount Hymettus and a search for possible unknown and smaller quarries on the mountain. Our work led us to a re-evaluation of the attested quarry-marks and the quarrying techniques on the extensive working-faces, as well as to a better understanding of the actual scale of the extraction and thus to a re-estimation of the bulk of the extracted blocks. Furthermore, we came to new conclusions about the scale of stone extraction during the Archaic period, judging from the distinctive technical features observed on the quarried rock.*

The research group working towards the compilation of a systematic catalogue, or *corpus*, of ancient Greek quarries was set up in 2002 in the Department of Archaeology and History of Art in the University of Athens by Professor -emerita today- Georgia Kokkorou Alevras, together

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<sup>1</sup> The following text has been written by Eir. Poupaki who was also responsible for the coordination of new investigations by the research team in southeastern Attika and mainly in mount Hymettus.



Fig. 1. Quarry of white marble on the “Nudists’ beach” at Marathon.

with Eirene Poupaki, Alexis Efstathopoulos and Achilleas Chatziconstantinou at the start, and Efstathia Rigatou, who joined the team later. The published volume<sup>2</sup> is the happy outcome of this laborious and complicated project, comprising a compilation of information for each quarry separately. The achievement of such a huge task would not have been realized without the financial support of the research program *Kapodistriais* of the National and Kapodistrian University of Athens. The published volume, with additional photos from the quarries, can be also retrieved on the official web page of the Department of History and Archaeology of the NKUA.<sup>3</sup>

The data about the quarries of southeastern Attica and, especially, Hymettus, assembled in the published volume had been in the meantime significantly enriched: our team set out to illustrate the quarrying activity that took place during the whole of antiquity and to update, to a point, the data from past publications.

The natural and archaeological landscape of southeastern Attica, as it appears today, has been thoroughly altered during the last decades, due to the close-packed building of new structures and the construction of the present road network that was put in place ahead of the Olympic Games of 2004. For example the ancient quarries of Brauron at *Pouria* (Corpus no. 749)<sup>4</sup> and to the southwest of the early-Byzantine Basilica (Corpus no. 750) are difficult to locate anymore, while the quarries in the district of ancient Rhamnous (Corpus no. 947-50) are quite invisible nowadays, because of the dense vegetation and the opening of modern quarries that have obliterated the ancient quarrying traces.<sup>5</sup> As a matter of fact, the major cause for the disappearance of the ancient extraction traces on the rock is the opening of modern quarries on ancient quarrying sites, such as the modern quarry in *Kakorema* of Hymettus and of the quarry in *Upper (Ano) Glyfada*.

2 Kokkorou-Alevras *et al.* 2014.

3 <http://www.arch.uoa.gr/ekdoseis/ekdoseis-toy-tmimatos/eikones-latomeiwn.html>

4 The inventory number in the *Corpus* (= Kokkorou-Alevras *et al.* 2014) for each one of the discussed quarries is cited in-text, whereas bibliography for quarries not included in the *Corpus*, is cited in the footnotes.

5 Hodge and Tomlinson 1969, 192 n. 15.



Fig. 2. Rock-cut slipway in Marathon quarry.

Nevertheless, a few quarries that came to light during the recent rescue excavations of the Ephorates of Antiquities of Attica (ex B' and ΚΣτ' Ε.Π.Κ.Α.) are sufficiently published by their excavators to provide important knowledge about the exploitation of natural resources of Attica during antiquity. For example, the quarry excavated on Ivi Street (Corpus no. 747), on the borderline of the Artemis and Markopoulo municipalities, constituted the major quarry of “poros” (sandstone) for the sanctuary of Brauron. Remarkable wedge-holes and tool-marks of the characteristic quarry-pick, which was the tool pre-eminently used by the workers, can still be observed. In the past decade, another quarry of the 4<sup>th</sup> c. BC was excavated in the same area, on Brauron Street,<sup>6</sup> which too preserved important quarrying traces.

Again, an ancient quarry of limestone dated also in the Classical period was revealed in Ellinikon (Corpus no. 745), during the public works for the Olympic Games. According to the excavator,<sup>7</sup> important finds came to light, and in particular a hoard of 57 bronze coins from the Salaminian and Eleusinian series, as well as a large number of pottery sherds, which could have been dumped as a fill (and for the restoration in part of the natural environment?) in antiquity after the extraction. Important quarrying sites have been also excavated in the neighboring municipalities of Alimos (ancient Alimos), on the hill of *Pani* (Corpus nos. 743-4) and *St. Anne*,<sup>8</sup> Argyroupolis (ancient Evonymos) and Glyfada (ancient Aixonidai Alai) during rescue excavations. In particular, the quarry of Argyroupolis was excavated on Vouliagmenis Avenue, in the vicinity of the Archaic theatre of Trachones,<sup>9</sup> and is dated to the 5<sup>th</sup>-3<sup>rd</sup> c. BC. In Glyfada, an important Classical quarry had been found when opening the foundations of the Hotel

6 Methodiou-M. Psathi 2006, 177.

7 Kaza-Papageorgiou 2006, 103-6.

8 Another quarry was discovered later on the hill of *Aghia Anna* at Alimos: Psarri 2009, 228.

9 The quarry had been explored during the rescue excavation in the property of the car dealership ‘Kosmocar A.E.’ (Karenta): Kaza 2005, 243-4; Dova 2007, 229; Papageorgiou 2015. The quarry is visible and can be visited nowadays.

“Asteras”,<sup>10</sup> and yet another was excavated in the commercial plot of the same municipality.<sup>11</sup>

The ancient quarries of the Lavrion peninsula are well known in modern literature; in particular, the Agrileza quarry is famous for its gray-bluish marble, which had been used for the Temple of Poseidon in Cape Sounion, but also for less important monuments of the region (e.g. tomb enclosures, houses and workshops of Thorikos etc.). Much information for the quarrying activity on the *Lavrion* peninsula is provided by the rescue excavations of the former B' Ephorate of Prehistoric and Classical Antiquities of Attica and the Belgian Archaeological School in Thorikos. At *Thermi* of KalyviaThorikos, a limestone quarry of the Classical period has been investigated (Corpus no. 757), while a gray-whitish limestone had been also quarried in *Stefani* until the Roman period (Corpus no. 755). In *Velatouri* in the ancient city of Thorikos (Corpus no. 756), a quarry of gray-bluish marble had been opened for the construction of the nearby theatre, the earlier use of which goes back to the Geometric period. This quarry was active until modern times: it must be one of the oldest and longest-lived quarries of Greece, if the published date of its opening is indeed correct.

During the last decades, the existence of ancient quarries has also been recorded on several internet sites; however, sometimes the information given is wrong and requires verification. Ancient quarries, dating in the 4<sup>th</sup> c. BC, at *Barako* and *Pefkoto* of *Vari* (ancient Anargyrous),<sup>12</sup> where vertical extraction of blocks had been observed, was mentioned on the site of the Municipality of Vari and it was included in the Corpus (Corpus no. 748). Later on, a rescue excavation by the local Ephorate of Antiquities brought to light the road whereby the transfer of the extracted blocks was made, thus corroborating the above information on the internet site.<sup>13</sup>

Information about the ancient quarries of southeastern Attica, which are still visible, even if only partially, led us to other sites of extraction. Thus, during the search for the ancient quarry of “poros” (sandstone) on the western coasts of Marathon, at *Drakonera* (Corpus no. 758), we came across a quarry of white marble in a nearby coastal site of the *Dikastika* settlement, where the nudists’ beach is located (**Fig. 1**). That quarry was probably active in antiquity judging from the remnants observed, such as the stepped extraction,<sup>14</sup> the complete absence of traces from modern quarrying methods (dynamite, pneumatic hammer, etc.) and the coastal location of the quarry, which was extremely convenient for the transfer of the extracted blocks. A rock-cut formation is reminiscent of a slipway, used as a rudimentary dock, on which the ships would be pulled up, to be loaded with the detached blocks and then relaunched into the sea (**Fig. 2**).<sup>15</sup> It is probable, though, that the good quality of the quarried marble,<sup>16</sup> which was fine-grained without any veins or fissures, will turn out to have ensured its use in local architecture and even in sculpture, should archaeometric analysis be one day applied.

The existence of another quarry in Marathon valley, located close to an ancient road,<sup>17</sup> in the vicinity of the *Cave of Pan* and the *Gorge of Oinoe*, is also recorded, as well as extraction sites to the west of Nea Makri, on the foothills of mount *Agrieliki*, which belong to the mountain bulk of Dionysus.<sup>18</sup>

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10 Kassimi-Soutou 2006, 229.

11 It was excavated on Eous Str. 28 in Glyfada: Antonopoulou 2008, 198.

12 Kassimi-Soutou 2006, 222; 2008, 188.

13 Kassimi-Soutou 2008, 188.

14 Kokkorou-Alevras *et al.* 2010, fig. on p. 32.

15 Compare with the slipway in the *Feloti* quarry of Kythera: Kokkorou-Alevras *et al.* 2009, 182.

16 Papageorgakis 1966, 211-2.

17 [http://5.135.161.95/topoguidemap/1advfull.php?a=Attiki/Attiki\\_Marathonas\\_faragi\\_Inois](http://5.135.161.95/topoguidemap/1advfull.php?a=Attiki/Attiki_Marathonas_faragi_Inois)

18 <https://el.wikiloc.com/oreibasias-diadromes/miltiadeios-atrapos-tmema-10501637>



Map. 1. Map showing the quarries of Hymettus.

## HYMETTUS QUARRIES

The research undertaken in southeastern Attica focused, heavily, on the ancient quarries of Hymettus (**Map 1**), which were well-known to the ancient authors.<sup>19</sup> At the end of the 19<sup>th</sup> c. AD, it was Milchhöfer<sup>20</sup> who undertook the first mapping of the whole mountain. These ancient quarries of marble have continued to attract the interest of many scholars up to the present:<sup>21</sup> they have explored mainly the quarries located on the western steep slopes of the mountain, in the deep and wild gorge of *Kakorema*, close to the chapel of Ag. Georgios Koutalas.<sup>22</sup> *Kareas* produced, however, a yellowish limestone, known as *agrylikos stone*, named after the nearby ancient deme.

Quarrying traces had been also recorded in the grove of the Kaisariani Shooting Range (*Skopeftirio Kaisarianis*), known also as *Aleповouni* (Corpus no. 951), but they could not be located during our recent survey in the area. Nevertheless, there was abundant soft gray-brownish limestone thereabouts, which would have been exploited in the past, probably for local use as building material. The absence of tool-marks does not allow any conclusions about the quarrying in the *Aleповouni* area. According to Merle Langdon, there was evidence of a prehistoric settlement in that area, whereas the quarrying activity was rather restricted. The quarry could have been part of a Roman farmstead, which was defined by inscribed *horoi*.<sup>23</sup>

Additional traces of ancient quarrying had been also revealed in the nearby municipalities of Argyroupolis and of Ilioupolis, at *Aghia Eirene* (Corpus no. 952) and the *Profitis Ilias Chapel*

19 Strabo, *Geogr.* 9.1.23: "Μαρμάρου δ' ἐστὶ τῆς τε Ὑμηττίας καὶ τῆς Πεντελικῆς κάλλιστα μέταλλα πλησίον τῆς πόλεως".

20 Milchhöfer 1889, sheet IV.

21 Ober 1981, 68-77; Langdon 1985, 257-70; 1988, 75-83; 1999, 481-508; Spathari 1997, 5-6; Goette *et al.* 1999, 83-90; Goette 2002, 93-102; Lekkas 2004, 305-12.

22 Xenogiannis 1978.

23 Langdon 1985, 257-60.

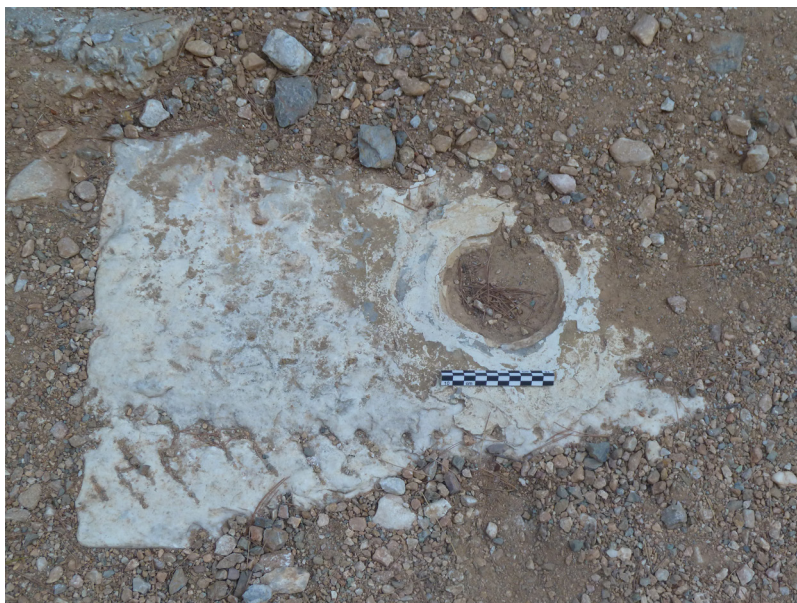


Fig. 3. Threshold half-buried in the path leading to the “Karavi” quarry.

(*Corpus* no. 953), respectively. A modern quarry was also active at the end of Sophocles Venizelos road in Ilioupolis, in the proximity of the barrier and the fire outpost. Contemporary quarrying activity took place close to the *Asteriou Monastery*, too (*Corpus* no. 961).

Furthermore, west of the *Kareas Monastery*, the remains of limestone extraction (*Corpus* no. 954) have been observed, although immediately around the monastery this is rather modern than ancient quarrying activity. Recently, 2 km south of *Aghios Ioannis* at the *Kareas Monastery* (the ancient deme of Themakos or Euonymon), a small quarry of Hymettus marble has been located. The intensive quarrying left a deep and impressive pit dated in the Hellenistic period: the rough installations observed in the adjacent area around the *Aghios Nikolaos Church* have been attributed to the mercenaries of the Ptolemaic fleet during the Chremonidean War (266-262 BC).<sup>24</sup>

In the publication of N.S.C.R. “Demokritos”,<sup>25</sup> where the chemical identity of Pentelic and Hymmetian marbles is given, there is a map with the sites of an extended Hellenistic-Roman quarry of the gray Hymettian marble on the upper part of the mountain, and of smaller quarries of white fine-grained marble in the foothills. According to the authors, the white marble of Hymettus was in use before the Pentelic, so the above-mentioned quarries have been dated in the Archaic-Classical period. The intensive surveys in the marble outcrops of the mountain have enabled us to record new data about certain extraction areas, i.e. distinct quarries:

1. On the top of the mountain, at the site of *Karavi*, where a zone for climbing exists nowadays (*Corpus* no. 758). The site can be reached by the path, which passes in front of the chapel of *Aghios Georgios Koutalas*,<sup>26</sup> and which partly follows the ancient quarry road, which is bordered by a retaining wall and embankment.<sup>27</sup> Indeed, a few unfinished architectural members

24 Kaza-Papageorgiou 2006, 134-6.

25 Goette *et al.* 1999, 83-90.

26 The ancient street branches some meters further on. One takes the sledge path on the left, which is steeper. At the next fork again the steeper path, on the left. At the end of that path, there is a small quarry (no. 2 cited above).

27 Carpenter and Boyd 1977, 189; Goette *et al.* 1999, 87.



Fig. 4. A rectangular chamber at the lowest part of the path towards “Karavi” quarry.

(e.g. a part of a threshold: **Fig. 3**)<sup>28</sup> and extracted blocks with tool-marks (e.g. a block with a series of 7 wedge-holes)<sup>29</sup> are embedded in the path. At the lowest part of the path, and adjacent to it, a rectangular chamber (**Fig. 4**)<sup>30</sup> of uncertain date has been built with stone slabs without mortar (dim. 3.00 × 5.20 m and pres. ht. 1.00 m). The path ends at the impressive vertical face (more than 20 m high) of this extensive quarry of gray marble. Marble chips and extracted blocks are scattered all over the site; as a matter of fact, walking on the sloping path covered with the chipped stones proved to be a rather dangerous task. On the rock surface there are visible point and cutting edge-marks caused by the chiseling (with the hammer) around the hollows left by the extracted blocks, while the wedge-holes (rectangular and square) illustrate the efforts of the quarrymen to detach the blocks from the parent rock.<sup>31</sup> On the quarry face the diagonal and horizontal parallel marks of the *tykos*, the quarrying double-axe with its two blunt edges, are visible. The fish-bone working-pattern (*a festoni* technique), dated from late-Roman period onwards, is also observed (**Fig. 5**). The stone extraction process has formed recesses of some size, separated by sections of untouched rock that look like buttresses now (**Fig. 6**). These spaces were later filled with quarrying waste products when the fine quality marble was exhausted, as has also happened in the Pentelikon quarries, according to M. Korres. In fact, the very ground surface of the quarries is built up with this debris. The same process was also followed in other ancient quarries, e.g. in Karystos, in Chasampale of Thessaly, in Kos etc.<sup>32</sup>

In the northeastern part of the quarry, eight ‘steps’ had been cut out of the rock (or, at least, eight may be observed nowadays) (**Fig. 7**), ascending in a total height of 33 m.<sup>33</sup> It is obvious

28 Lat.: 37;51;49.0599999999975 / long.: 23;44;53.8600000000003. Thresholds carved in Hymettus marble had been used in the temples of *Apollo Patroos* and *Artemis Aristovoule* in Athens, as well as for the *Skevotheke of Philon* in Piraeus: Townsend 2004, 312.

29 Lat.: 37;57; 10.23000000000104/ long.: 23;47;29.14999999999943.

30 Lat.: 37;57;7.00000000000002 / long.: 23;47;30.42999999999929.

31 Kokkorou-Aletras *et al.* 2010, 39-40, 49-51.

32 Poupaki 2017, 209, n. 31-4 (with bibliography).

33 Ht. of each step (from the topmost to bottom): 40, 40, 45, 45, 55, 35, 40 and 30 cm.



Fig. 5. Quarry faces with fish-bone quarrying pattern (a festoni technique) in the "Karavi" quarry.



Fig. 6. Recesses/ "chambers" separated by sections of untouched rock formed by stone extraction in "Karavi" quarry.





Fig. 7. Eight 'steps' formed in the rock by stone extraction in the "Karavi" quarry.

that the topmost step belongs to the earliest phase of quarrying. In the northeastern corner of that space, there are three carved blocks, which were not split off the natural rock (**Fig. 8**) The biggest block measures  $0.90 \times 2.45 \times 0.90 \times 2.40$  m, ht. 0.30 m and the half-carved  $1.10 \times 1.05$ , ht. 0.40-0.50 m.) and is entirely surrounded by extraction trenches<sup>34</sup> (north: l. 0.90, w. 0.55 m, ht. 0.30 m; east: l. 2.45 m, w. 0.45 m, ht. 0.30 m), in contrast to the two smaller ones, which remained attached to the vertical faces of the rock.<sup>35</sup> In the eastern corner of the quarry, there is another plinth attached to the rock ( $0.60 \times 0.80$  m., ht. 0.90 m) and two elongated concave hollows mark the extraction of two monolithic columns of about 3.20 m in height and 0.40-0.50 m in diameter (**Fig. 9**). As is widely known, columns of Hymettus marble, fully carved, were transported by stone-carrying ships (*λιθηγοί νῆες*), which carried the quarried products across the Mediterranean, as proven by the wreck of Mahdia, close to the Tunisian shoreline (1<sup>st</sup> c. BC).<sup>36</sup> Certainly, then, this part of the quarry was active during the Roman and Late Roman period, but the extraction had apparently begun much earlier (in Hellenistic times?).

Next to the recessed zone at the east, there is another one formed by intensive quarrying, but the thick vegetation does not allow any additional detailed observations about the extraction methods. However, on the quarry faces the characteristic *tykos* marks are to be seen and close to the corner of the recess the inscription ΚΕΘΗΓΟΥ (**Fig. 10**) can be read.<sup>37</sup> According to J. Ober,<sup>38</sup> this is the genitive case of "Κέθηγος" (lat. CETHEGUS), who may have been the owner of the quarry. Indeed, to the family of Cethegus belonged certain senators and consuls down to the era of the emperor Tiberius. This information makes the dating of this part of

34 Quarrying trenches are carved vertically and around each block to be extracted: Kokkorou-Alevras *et al.* 2010, 39. For the quarrying trenches in this quarry: Waelkens *et al.* 1990, 49 fig. 1.

35 1<sup>st</sup> plinth: dim.  $0.40 \times 1.10 \times 1.05$  m, ht. 0.55 m; 2<sup>nd</sup> plinth: dim.  $0.60 \times 0.80$  m., ht. 0.90 m. The plinths are located in the site: Lat.: 37; 57; 3.60000000000567 / Long.: 23;47;30.3399999999963.

36 Merlin 1909, 650-71.

37 Lat.: 37;56;59.7099999999916 / long.: 23;47; 8699999999954. L. of inscription: 90 cm., ht of "Y" 17 cm, w. of "Y" 8 cm, diam. of "O" 10/9.5 cm, ht. of "E" 19 cm, w. of "E" 16 cm.

38 Pleket and Stroud 1981; Ober 1981, 70. For the use of Hymettus' marble in Roman villas: Pliny, *Naturalis Historiae* 36.7.



Fig. 8. Three blocks in the northeastern corner of the "Karavi" quarry.



Fig. 9. Two elongated concave impressions from the extraction of two monolithic columns in the "Karavi" quarry.



Fig. 10. Inscription ΚΕΘΗΦΟΥ engraved on the quarry face behind the "Dragon-house".



Fig. 11. The "Dragon-house" of Hymettus (view of its entrance).



Fig. 12. The interior of the "Dragon-house".



Fig. 13. Three blocks in the northeastern corner of the "Karavi" quarry.

the quarry to before the age of Augustus very likely.<sup>39</sup> 14 cm above the inscription, there is a series of eight vertical engraved lines, which probably indicated the number of blocks to be extracted or transported, a common practice in many ancient quarries (e.g. in the *Aformous* bay on Naxos,<sup>40</sup> in *Tsoukali* at Karystos<sup>41</sup> and in the *Avlemonas* quarry of Kythera<sup>42</sup>).

The area in front of the “Kethegos quarry” is dominated by the celebrated “*Dragon-house*” of Hymettus (**Fig. 11**), which has been identified as a dwelling for the laborers or a store for the quarrying equipment,<sup>43</sup> even as a cult place.<sup>44</sup> This circular building is constructed with boulder-sized slabs in a corbelling technique. In the interior there is a semi-finished *mensa* or altar (**Fig. 12**, dim. 0.34 × 0.55 × 0.50 × 0.36 m, ht. 0.33 m, ht. of the rim 0.055 m), while into the side walls a small two-levelled niche is cut (0.26 × 0.19 × 0.25 m, ht. 0.20 m and 0.14 m) and a wide step, which looks like a bench (w. 0.08/0.10 m), is to be found above the floor. The doorjamb (w. 0.28 m, dim. of sockets: 4.50 × 5.00 cm) of its entrance (overall w. 0.80 and pres. ht. 0.95 m) is well constructed. The hypothesis that the *Dragon-house* of Hymettus had been used as a cult place seems likely, though no archaeological evidence exists.<sup>45</sup> Buildings which are identified as ancient lodges bear special cuttings associated with the placement of the elementary furniture. For example, in *Drakospilio* cave of Nisyros, located underneath the Hellenistic tower,<sup>46</sup> there are such formations in the rock for the guards of the tower, who were its occasional residents. In the surroundings, another two *Dragon-houses* are noted too.<sup>47</sup>

2. Below the “Kethegos quarry”, on the lower part of the slope, in a ravine, more vertical quarry faces<sup>48</sup> were explored (Corpus no. 957) and additional quarrying traces were recorded: wedge holes, stepped extraction, a sloping surface, a ramp for the movement of the extracted blocks (**Fig. 13**) and the typical *tykos* traces, which form the fishbone pattern as observed in the aforementioned quarries. The detection of the use of the pick-axe with a broad and a blunt end (*πλατύστομη τυπίς* or *κροταφίς*) is quite noteworthy for this marble quarry, because this tool is

39 After the reign of Augustus, Greek marbles were no longer popular in the Roman empire; on the other hand, the use of Carrara marble became so in Italian peninsula: Ober 1981, 69-70.

40 Kokkorou-Alevras *et al.* 2014, no. 474.

41 Kokkorou-Alevras *et al.* 2014, no. 1001.

42 Kokkorou-Alevras *et al.* 2014, no. 238.

43 Carpenter and Boyd 1977; Koželj and Wursch-Koželj 1995, 27-9.

44 Oikonomidis 2018.

45 On mount Hymettus have been excavated in the past several cult places mentioned by Pausanias, who had seen the statue of Hymettian Zeus and the altars of Ombrios Zeus and Apollo Proopsios (*Ελλάδος Περιήγησις* I 32, 1-2). The most important sanctuary has been excavated at *Euzonas*, the highest peak of the mountain, which was dedicated to *Ombrios Zeus* (Langdon 1976). That sanctuary, also mentioned by Pausanias, is dated at the end of the 8<sup>th</sup> and the beginning of the 7<sup>th</sup> c. BC and is connected with the general effort to please the Gods in a period when the polis had been plagued by drought followed by epidemics and social turmoil. There is also a reference about the cult of *Apollo Proopsios* on Hymettus, who was considered to be the God responsible for the climate changes. The excavated remains of an amphiprostyle temple on the site of Prophet Elias chapel, in the mountainous pass from Glyfada to Koropi, has been attributed to an Apollo cult: Kotzias 1949, 51-3. A significant sanctuary of the 4<sup>th</sup> c. BC dedicated to Pan, the Nymphs and Apollo was established in a cave of Vari, named as “*Nympholeptos* or *Archedemus Cave*”, according to the preserved inscription. In that cave, the cult had been re-established in the era of Julian the Apostate, and this is the place where the Neoplatonists’ assembly gathered: Weller 1903, 263-88. Another sanctuary dedicated to Pan and the Nymphs has been excavated in the *Leontari Cave* on Hymettus, at the eastern slope of *Korakovouni* and to the west of *Glyka Nera* in Paiania. This cave has been inhabited since the Neolithic period (Mavridis and Karali 2018).

46 Filimonos-Tsopotou 2013, 155.

47 Goette *et al.* 1999, 87 ; Goette 2002, 98.

48 These quarries of *Kakorema* can be reached via the track from the military camp *Saketta* of Vyronas towards the modern quarry.



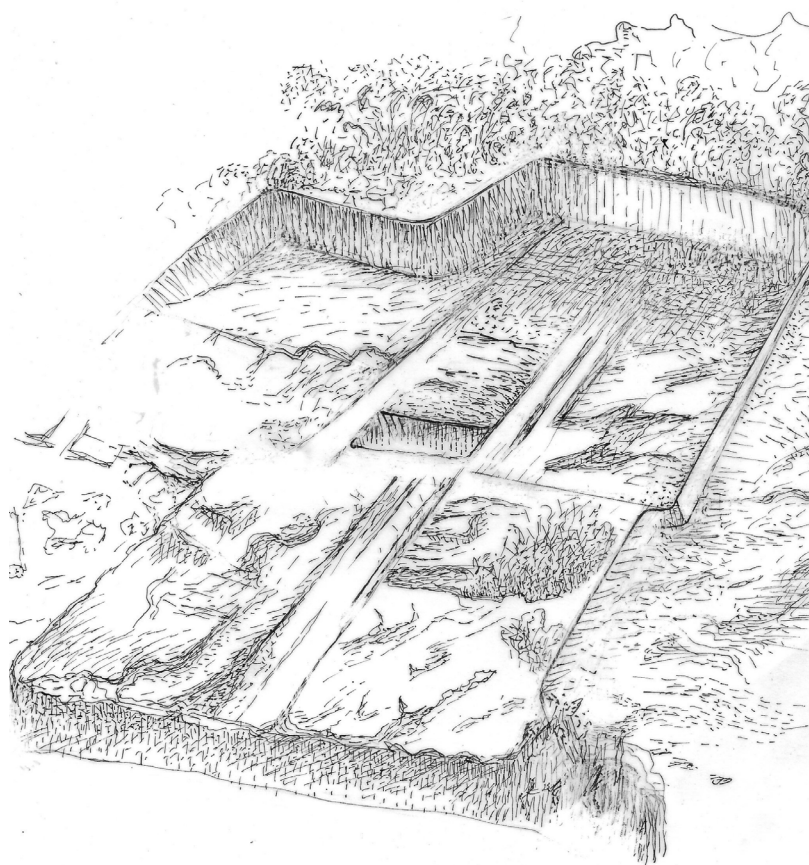
Fig. 14. Impressions of four detached blocks separated by quarrying trenches with series of punch-marks (*pointillé technique*) inside, in the “lower” quarry.



Fig. 15. Row of three extracted blocks separated by trenches with rectangular and trapezoidal wedge-holes, in the “lower” quarry.



Fig. 16. An unfinished monolithic column in the dump of debris of the quarry on the highest part of the mountain.



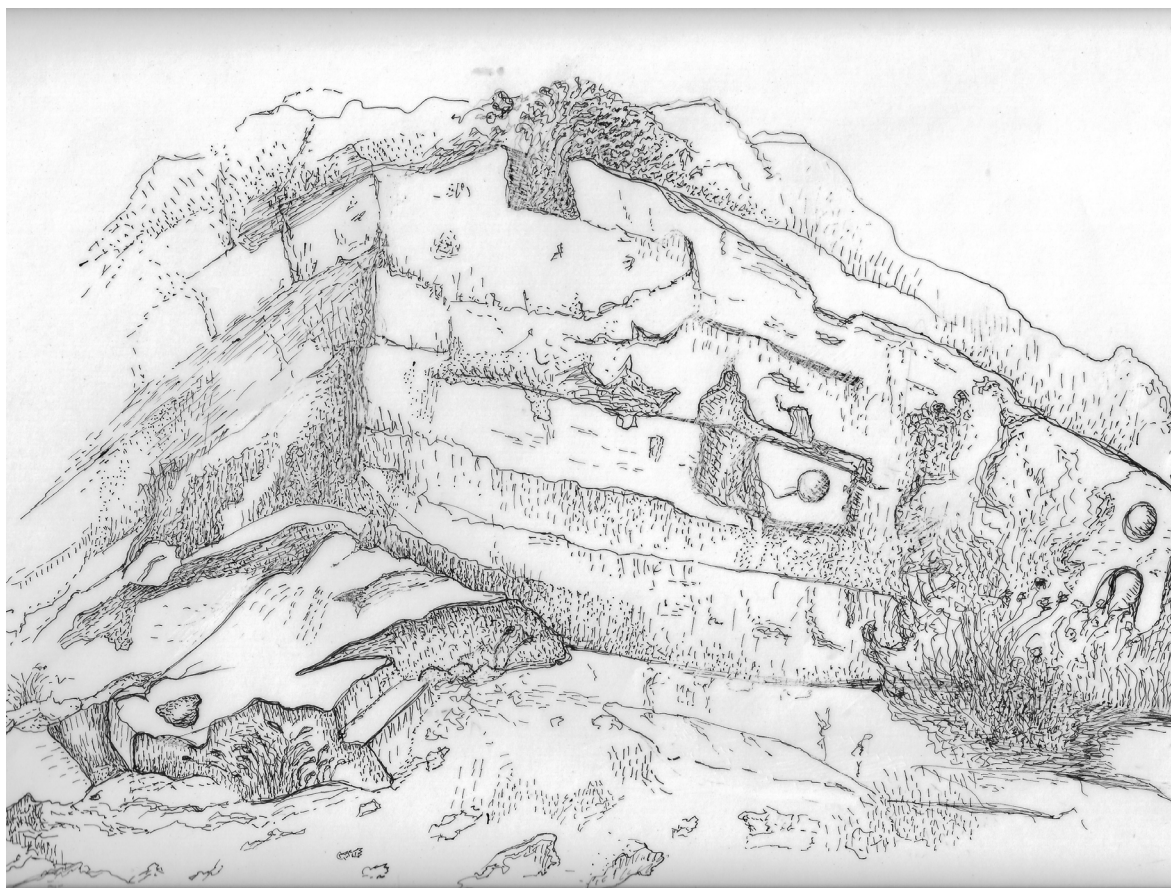
Drawing 1. Impressions of four detached blocks separated by quarrying trenches with series of punch-marks (*pointillé* technique), in the “lower” quarry.

mainly preferred for the extraction of soft stones, as our team has pointed out.<sup>49</sup> In this quarry is also to be remarked the use of the punch for the final detachment of a block from the parent rock instead of the wedges. That process is known as “*pointillé* technique” and leaves a series of circular marks on the rock; it can be dated to the Archaic period, as can be assumed for the *Apollonas* quarries of Naxos.<sup>50</sup>

**3.** During the ascent and before reaching the big quarry of *Karavi*, if one takes the steep path to the left, one arrives at the very top level of another quarry, which abounds in marble chips and possesses a lot of circumscribed surface extraction pits. Thus, on the higher part of the site there is a small rectangular depression (dim.: 1.00 × 2.80 × 1.5 m, ht. 0.40 m) and below it extends a sloping terrace (gradient 21°) due to the quarrying process. From this part of the quarry face, four blocks have been extracted (**Drawing 1**); the preserved traces of two rows of two blocks each are separated by quarrying trenches (w. 20 cm) of a series of punch-marks (*pointillé* technique) – quite eloquent for the quarrying technology adopted (**Fig. 14**). The above-mentioned method of detachment of the block from the parent rock, the so-called *Keilrinne/Keilgraben* technique (of *pointillé* work inside the quarrying trench), is also attested in several quarries of Classical date (e.g. the travertine quarry in Pyli of Kos: Corpus no. 83). On the lowest level of that slope, there is another less fiercely sloped terrace (gradient 18°), where another row of three extracted blocks of slightly bigger size (2.20/2.50/2.00 × 0.90 m.) is also

49 E.g. the quarry of *Feloti* at Kythera: see above n. 14.

50 Kokkorou-Aletras *et al.* 2010, 42.



Drawing 2. General view of the large quarry at the top of the mountain.

preserved (**Fig. 15**). Between the traces of the extracted blocks, there are trenches of 15 cm width, where rectangular and trapezoidal wedge-holes had been hollowed out (three series of 9, 7 and 7 wedge-holes are preserved). On the imprint of the biggest plinth, 11 successive circular marks of a crowbar used for the shifting of the extracted blocks are also visible. This horizontal extraction of blocks in rows is identical with the one employed in the organized quarries of the Classical period, as is also the case in the *Chrysafa* quarry in Lakonia (Corpus no. 692). Generally, this quarry seems to be older than the other quarries described above; indeed, the work must be dated as early as in the 6<sup>th</sup> c. BC.

4. Above these quarrying sites, on the highest part of the mountain, there is another big quarry (**Drawing 2**), but not as extensive as the “*Karavi* quarry” though. The uphill path is thick with marble chips, which complicates the ascent towards the quarry front. In the quarry among the dumped debris, there is a semi-finished monolithic column, 1 m in visible height and 45 cm in diameter (**fig. 16**).<sup>51</sup> On the lowest part of the quarry face, there are two carved blocks (dim.: 0.80/1.00 m x 1.70 m) surrounded by quarrying trenches formed by a series of punch-marks (*pointillé* technique), which are ready to be extracted from the parent rock. On the quarry front, above these blocks there are some holes for the secure fastening of ropes used for the movement of the blocks (**Fig. 17**). Similar holes in the quarry fronts for the same purposes are also attested in the quarries of *Apollonas* in Naxos, next to the unfinished/semi-carved statue of

51 Lat.: 37; 57; 14.640000000140 / long.: 23;47; 37.520000000040.



Fig. 17. Holes for the secure fastening of ropes used for the transportation of the blocks in the quarry.



Fig. 18. A non-detached triangular block in the central part of the quarry on the highest part of the mountain.

Dionysos, in the *Tsoukali* of Karystos and elsewhere.<sup>52</sup> In the western part of this quarry there is a rectangular recess (dim. 1.70 x 4.10 m) formed by cutting out the rock, in front of which there is a non-detached triangular block (dim.: 1.40 x 1.40 x 1.25 m and ht. 20-25 cm) surrounded by quarrying trenches with a series of punch-marks (*pointillé* technique)<sup>53</sup> (**Fig. 18**). In this quarry there are no imprints of extracted blocks, though *tykos* traces are to be seen on its vertical walls, over a height of more than 10 m. (**Fig. 19**). A mound of marble chips and related quarrying debris fills all the eastern part of the quarry, where the ascent is extremely difficult (**Fig. 20**). The general appearance of the quarry points to it belonging to the same period of activity as the previous one.

52 Poupaki and Chidioglou 2017, 444 fig. 5.

53 The peculiar block recalls the general shape of a triangular base or pedestal, which are known, but also rare, from the Archaic period on (e.g. the Archaic base of *Euthykartides* in Delos Mus. No. A728: Kokkorou-Alewrass 1995, 83-4 no. 12 figs 24-7).





Fig. 19. Tykos traces on the vertical wall of the quarry on the highest part of the mountain.



Fig. 20. A mound of marble chips and related quarrying debris in the eastern part of the quarry on the highest part of the mountain.

Finally, several more quarry sites dated in the Roman period<sup>54</sup> have been also recorded in the bulk of mount Hymettus: one is found to the northeast of *Profitis Ilias* (Corpus no. 958) and another one in *Sesi* of Koropi (Corpus no. 959), which is adequately published and may even be dated to the Byzantine period.<sup>55</sup> In both quarries, extracted monolithic columns had been preserved *in situ*.

Despite the abundance of information gathered and cited in this study, there is still plenty of evidence in the various publications, which has neither been corroborated nor rejected by our research. However, the most important conclusion to emerge from our recent research is that the quarrying sites dated from the Archaic period onwards are numerous, and that therefore a great scale of production seems plausible even in such an early period, during

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54 For the chemical identity of Hymettian marble: Attanasio *et al.* 2006, 87-91.

55 Langdon 1988.

which marble of the quarries of Naxos and Paros were widely imported in Attica. Even if the major role of Naxian and Parian marble in Archaic Attic sculpture remains beyond question, the use of Hymettus marble, if not very suitable for sculpture, was not absent from the Attic stone-carving workshops. Even though not a lot of Archaic Attic sculptures of this marble are preserved,<sup>56</sup> there does exist in Attica sculpture in the round, e.g. the calf-bearer or 'moschophoros' of Acropolis (Acropolis Mus. no. 624), and the horseman from Vari (National Museum no. 79), amongst others, as well as architectural sculpture (e.g. the frieze with the leopards and the Gorgo acroterium of the building H of the Athenian Acropolis) all carved from Hymettus marble, as is well known. In smaller quantities, the same marble had been also used in the Classical period (e.g. for Iris' wings on the west pediment of Parthenon).<sup>57</sup> Furthermore, the marble of Hymettus was used as building material for the earlier buildings of Athens (e.g. the Hekatompedon and the ancient Temple of Athena on the Athenian Acropolis<sup>58</sup>) and in Attica too (e.g. the ancient theatre of Euonymon in Trachones<sup>59</sup>). In the architecture of the 4<sup>th</sup> c. BC, the Hymettus marble had but a secondary role, but it was quite often used in several buildings of Athens (e.g. in the Thrasyllus monument, in the Doric stoa of the Asklepeion and in the theatre of Dionysos on the south slope of the Athenian Acropolis, the temple of Apollo Patroos and in the altar of Zeus Phratrios and Athena Phratria of the Athenian Agora, and so on) and in the Piraeus (e.g. the skevotheke of Philon, etc.).<sup>60</sup> Even more so, this marble was broadly used for stelae bearing all kinds of inscriptions. Future further research and archaeometric analysis will reveal the extent of the use of this Attic marble.

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56 Recently, Palagia 2010, 44 (with previous bibliography).

57 According to Palagia (2006, 119), the marble from Hymettus ceased to be used towards the 4<sup>th</sup> c. BC

58 Butz *et al.* 1999, 258-9.

59 Paga 2010, 364.

60 Townsend 2004, 311-4; Wycherley 1978, 66-7.

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