Quarries in the region of Aphrodisias: the black and white marbles of Göktepe (Muğla)

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The ornamental black stones used in Roman times are commonly called *nero antico*, *bigio morato* and *bigio antico*, following the nomenclature established long ago by stonemasons. The names do not provide any hint as to the geochemical nature of the materials or their places of origin, but they are quite appropriate to describe the macroscopic appearance of the stones. According to Faustino Corsi, who pioneered the study of decorative stones,[1] *bigio morato* and *nero antico* are rather similar dark grey to black stones which, owing to their extremely fine-grained texture, attain a quasi-metallic shine after polishing; the black hue of *bigio morato* is less pronounced, resembling "a black stone slightly covered by dust". In contrast, *bigio antico* is a medium- to coarse-grained marble exhibiting different shades of grey and various mottled effects. *Bigio antico* is usually a true marble, whereas *bigio morato* and *nero antico* are mostly limestones, although the discovery of the Göktepe marble quarries proves that this is not always the case.

The analyses carried out some years ago on three *nero antico* statues in the Capitoline Museums, the Zeus and Aesculapius from Anzio and the old centaur from Hadrian's Villa at Tivoli, confirmed that they were made from the same type of stone, but its provenance remained unknown.[2] Cape Tainaron in the Peloponnese could be excluded because only small outcrops of a crystalline black marble (a *bigio antico*, rather than *nero antico*) have been found there. The hope was expressed at the time that further research might find quarries of *nero antico* marble in the region of Aphrodisias, as suggested by the names of the two sculptors identified as Aphrodisians who signed the Capitoline centaur.

Quarries discovered in 2005 on the Anatolian plateau near the village of Göktepe (fig. 1), *c.*40 km north of the city of Muğla and no more than 40 km (as the crow flies) from Aphrodisias, seem to have solved the problem of the origin of *nero antico*, while also bringing a new surprise. They did not produce only *nero antico* but also small quantities of a lithotype that can be defined as *bigio morato* and a very fine-grained high-quality white statuary marble very similar to the stone quarried at Docimium, from which it can hardly be distinguished. The discovery of this white statuary marble, which was quarried on a much larger scale than the other two varieties, revealed the potential of the investigation that was slowly unfolding; the link with Aphrodisias, based also on the initial results of tests carried out on samples taken from the three *nero antico* statues mentioned above, has been extended to include many other statues produced by some of antiquity's most renowned ateliers, those of Aphrodisias. The systematic surveys carried out at the Göktepe quarrying site since 2005 have permitted the in-depth sampling of all the major quarries identified to date, establishing a database and detailed maps that provide a picture of the quarries in their present state after being partially obliterated by quarrying operations at the end of the last century.[3]

The Göktepe quarries lie on the Çağillar plateau[4] some 7.6 km south of the village with the

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1 F. Corsi, *Delle pietre antiche. Edizione terza con notabile aggiunta al terzo libro* (Roma 1845) 94 and 106-7.

2 M. Bruno and P. Pallante, "The 'Lapis Taenarius' quarries of Cape Tainaron (Mani Peninsula, S. Peloponnesus, Greece)," in L. Lazzarini (ed.), *Interdisciplinary studies on ancient stone. Proc. 6th int. Asmosia conference, Venice 2000* (Venezia 2002) 174.

3 Preliminary reports in D. Attanasio, M. Bruno, A. B. Yavuz and H. Elçi, "Aphrodisias and the newly discovered quarries at Göktepe," in R. R. R. Smith and J. L. Lenaghan (edd.), *Roman portraits from Aphrodisias* (Istanbul 2008) 217-27; A. B. Yavuz, D. Attanasio, H. Elçi, M. Brilli and M. Bruno, "Discovery and preliminary investigation of Göktepe marble quarries (Muğla, Turkey): an alternative source of Aphrodisias marbles," in Ph. Jockey (ed.), *ΛΕΥΚΟΣ ΛΙΘΟΣ. Marbres et autres roches de la Méditerranée antique: études interdisciplinaires, Proc. 8th int. ASMOSIA conference, Aix-en-Provence 2006* (Paris 2009) 93-109.

4 The plateau, at *c.*900 m asl, consists of the continuation of the slopes of Sivri Tepe (1153 m high) to the