Ergasteria. Premises and Processes of Creation in Antiquity

ERGASTERIA

Premises and Processes of Creation in Antiquity

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In memory of my father, my inspirator
E.C.P.

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ΕΡΓΑΣΤΗΡΙΑ

Premises and Processes of Creation in Antiquity

An Introduction

The globalised state of modern, industrialised production systems was challenged in multiple ways during the pandemic years – as was the production of this book, too. Everyone was accustomed to a nearly instant and, irrespective of seasonality, availability of raw materials and final products, taking for granted the unhindered transfer of both goods and professionals/specialists involved in their development; all of a sudden, with the whole world almost put on pause, the modern just-in-time-production, relying on a prompt transportation system, reached its limits. During the same period, the incident with the container ship 'Ever Given', which carried goods from China to the Netherlands in order to supply the whole of Europe but, instead, blocked the Suez Canal for six full days, demonstrated anew the tight-knit economic global networks: other container vessels were caught up in a traffic jam waiting in the Mediterranean and the Red Sea or had to re-chart their route, circumnavigating the African continent.[1] Thereby the chains of production were affected at a global level, production rates were reduced and certain products, such as the pharmaceutical ones, became scarce commodities. On a smaller scale, the state of seclusion ('under house arrest') incited people to focus on home production. In Germany, for example, the habit of making pastries grew so excessive that the purchase of flour had to be limited to a certain amount per capita and yeast was sold out for many weeks. By contrast, in Greece the unprecedented purchase rate of bicycles and rackets via the internet shows a sudden turn to physical exercise, apparently as a means of evading or escaping the imposed seclusion. Having not foreseen such circumstances, our call for papers, publicised in January 2020 with the aim to explore the multiple facets of production and production sites in antiquity, received additional and unexpected food for thought, especially due to this exceptional worldwide experience.

The contributions compiled in this collective volume provide a kaleidoscopic insight into different aspects of creation, artistry, craftsmanship, manufacture and processing in antiquity. The comprehensive bibliography assembled at the end of the volume bears witness to the wide range of topics discussed and the various approaches attempted. Effortlessly this book brings forward the interlacing and intersection of evidence, as well as the confluence of observations, which automatically enhance the validity of an interpretation. Instead of summarising all contributions in a linear fashion, which would recreate the sequence of the table of contents, we prefer to outline/delineate here our quests and considerations while preparing this book, and to allow the keynote benefit from each author's perspective to interlock and intertwine. It becomes obvious that every author's multifaceted optics yield a proportionate amount of remarks and conclusions; as a whole, these eventually empower our further understanding.

Setting out to shed light on ancient production, our knowledge is certainly patchy, since the topic is vast in its complexity. Production did not take place only in specialised workshops or worksites, but also within the walls of a household, since self-sufficiency in at least some aspects was necessary. On the other hand, craftsmanship on a trading scale or for public use would be expected to be reflected in the size of the respective production places, without necessarily meaning that their remains would be more durable or traceable in archaeological terms.

Ateliers of renowned creators, such as the one of Phidias at Olympia are rare finds and illuminate the process of creation at a given time, for a particular and widely known end-product. The same cannot be asserted for Scopas' or Exekias' workplace – much less for the sheds of anonymous craftsmen, who nevertheless created masterpieces in all sorts of materials. Although they all originated from a certain cultural background and were nurtured in a certain regional tradition, they were also exposed to and receptive of influences, as we shall see. Regardless of their fame or recognition,[2] craftsmen

[1] Cf. contemporary with the incident articles in the Washington Post <https://www.washingtonpost.com/world/2021/03/31/suez-shipping-crisis-coronavirus/> (latest accessed 30 January 2023) and by the Rotterdam School of Management, Erasmus University <https://www.rsm.nl/discovery/2021/opinion-suez-blockage/> (latest accessed 30 January 2023).

[2] Among the recent writings of our erudite teacher, Andrew F. Stewart, was his approach to the ancient sculptor's social standing, the recognition/reputation and reimbursement he may have earned, and the change to his social rank entailed by the acquisition of land

reflect contemporary society, being in dialogue with its values, its symbolism and evolution, and eventually expressing all the above. The authors of this volume converge in discerning a dialectic relation between tradition and innovation, with the introduction of new techniques, ideas and styles being a catalyst in making progress.[3]

It is always intriguing to view craftsmen and artists in their social and geopolitical setting. For instance, the Achaean goldsmiths and the stonecutters who specialised in funerary stelae represent not only the artistic production in Late Hellenistic Patras and Dyme but, furthermore, the cultural background of the Achaean League, a famous political and military confederation. Moreover, the two specialties are likely to have collaborated in a 'post mortem honour' industry. The vegetal scrolls carved on grave stelae and typifying them as a local West Greek production recur in golden diadems from funerary context in the same area. Reasonably the stone moulds for this motif were crafted by the same indigenous stonecutters/sculptors. Those ateliers in Achaea were succeeded in the Roman Republic and Imperial period by local industries of glasswork (probably fabricating also window panes), mosaics and sarcophagi, as suggested by particular motifs, designs and unparalleled forms. The whereabouts of their facilities are gradually being discovered. On the other hand, cases of large-scale production of foodstuff, pharmaceuticals, clothing or building material, which did not require a 'head of design'-artist (much less a master developer), are also very scarcely known; for this reason, the discovery of ancient 'processing quarters', e.g. for fish sauce in Andalusia[4] or flour production in southern France[5] shed some light on the sophistication of these workplaces in terms of ergonomics and economics.

If indeed, as usually postulated, workshops within religious premises were provisional modest shacks made of perishable material, the possibilities of their preservation and, consequently, of a fair reconstitution of their original appearance is minimised. Often the only traces left behind are stone flakes, abort or unfinished products, and very seldom architectural remnants of the building itself. The supposedly (often) ephemeral nature of workplaces contrasts the sense of endurance and permanence given out by the artefacts created inside them.

The fact that such workshops produced ritual vases alongside tableware, considered together with the frequent multi-functionality of a workshop's components, suggests the lack of 'labels' and – instead – the flexibility and adaptability of both the artisans and their installations. The case of a polyvalent and, at the same time, specialised workshop is highlighted by **Alla V. Bujskikh** at Olbia Pontica, where an open-air production space operated for almost two centuries within a sanctuary. Three workshops successively replaced each other on the same spot, involving different handicraft activities and probably serving rituals pertinent to the worship of Aphrodite.

Turning now to an urban setting, spaces of production were not always separated in districts defined as 'industrial'. Nor were they always marginal. In Paros, boundary stones demarcated a cluster of workshops[6] in a sort of a suburban quarter distinct from the settlement. In Miletus, in the late sixth century BC, a metallurgical and a potters' workshop were installed on the acropolis of Kalabaktepe, whereas, at the harbour, the area of the temple of Athena has yielded storage spaces along with traces of a goldsmith's workshop.[7] Clazomenae saw a bronze-foundry and an oil-mill operating at the same time in the city centre, near a river.[8] The term Kerameikos, used in ancient Athens and Selinus eloquently shows the designation of an urban district to pottery production. With regard to the use of urban space and the legal aspects of landownership in ancient Athens, **Gerhard Zimmer** elaborates on an Athenian atelier/worksite probably of some master bronze-sculptor. The sophisticated work installations and tools unearthed below modern Amalias avenue in Athens attest to the fact that material culture forged the advance of immaterial civilisation and the advance of knowledge. Bronze foundries in fifth-century BC Athens were the birthplace of subtle notions regarding beauty and aesthetics, proportions and harmony, rules and norms which perfected the statuary, as well as its impact. The mastery of modelling in bronze evolved from coping with constraints and obstacles throughout the work in the foundries. In this respect, bronze casters should be ranked as creators.

Obviously advantageous for a workplace was its proximity either to the source of material or to overland or maritime routes, which would facilitate its distribution. Transportability of raw materials in itself formed part of a wide operational network (réseau

property (Stewart 2019). Although Andrew's untimely departure bedimmed our hearts, his excellence in understanding and reconstructing the Past will continue to illuminate our path in this direction.

On the 'Meisterforschung' (Meister, αρχιτεχνίτης, μάστορας), methodological advantages and limitations, with emphasis on the role of every artist/craftsman within the society, expressing societal values, etc.: Borbein 2005.

[3] Particularly on the values established through creation processes, see Hochscheid and Russell 2021.

[4] Cf. at Baelo Claudia: Bernal-Casasola *et al.* 2021.

[5] Cf. at Barbegal watermill complex: Leveau 2007.

[6] Papadimitriou 2018.

[7] Verčík 2017.

[8] Cevizoğlu and Ersoy 2016.

opératoire). About the shipping of purple dye across significant distances and possibly through the agency of travelling professionals, experts in dyeing, we learn from inscriptions of the second/third century AD, which also illustrate the distinguished social status of purple workers.[9] In Hierapolis of Phrygia, an individual named Marcus Aurelius, son of Alexandros Moschianos, was commemorated on his gravestone as 'a member of the civic council and purple dealer' (πορφυροπώλης).[10] The dyeing installation at late Classical/Hellenistic Helike, presented by **Dora Katsonopoulou**, profited from its vicinity to the shore of the Corinthian Gulf, especially since it represents a professional and commerce-oriented industry, rather than a family enterprise, and therefore it affected the economy of the entire society.

In terms of spatial arrangement, **Giorgos M. Sanidas** explores how a workshop's location with reference to the overall site-plan brings forward parameters, such as the nuisance generated, for example, by a bronze foundry, which could be intolerable, depending on its operational duration but, mostly, on what it neighboured. Obviously the planting of a shoemaker's atelier and shop near a street in the Athenian Agora caused no nuisance from a sensorial perspective. Interlaced with the location of an atelier, and decisive as to whether this could be afforded within urban environs (*intra urbem*), is the noise, the smell, the fumes and other annoying or unhealthy side-effects of the fabrication process.

Nevertheless, the possible localities of workshops seem to be unlimited and, to a certain extent, determined by the purpose and needs they met. The Late Classical pottery kiln excavated in the valley of ancient Dyme in Achaea was established within a short distance from two necropoleis of the Classical/Late Classical period. An ensemble of red-figure vases of the fifth and fourth century BC, found as grave-offerings in these two cemeteries, is considered by the excavator Vassilis Argiropoulos to have been produced by a local Achaean workshop active in the countryside of Dyme, near the borderline with Elis. Moreover, these vases bear recognisable influence from South Italian ceramic workshops and especially those of Apulia with a tradition in red-figure vase-painting. To verify the plausible assumption that these funerary vases (from the outset meant to furnish graves) were fabricated in the aforementioned kiln, archaeometric and laboratory analyses of clay are being conducted.[11] Established also near a cemetery at the end of the Classical/beginning of the Hellenistic period was a workshops' quarter at Xobourgo (Tenos in the Cyclades), equipped with a pottery kiln, metallurgical pits, probably a stoa and other constructions.[12] Early on, in the Aegean islands a studio of sculptors or stonecutters could be set up literally on the site of a marble quarry.

This brings us to the very beginning of creation, namely the extraction of material, ranging from volcanic stone for the manufacture of mills on Nisyros in the Dodecanese (presented by **Eirene Poupaki**), to alabaster in Tunisia for architectural elements (investigated by **Ameur Younès**). Studies on the premises of quarries and other infrastructural worksites reveal also traces of cult[13] via relief representations of Heracles (perhaps an allegoric visual connotation of the 'heroic' power required for the extraction and manoeuvring of stone blocks) besides aspects of management and administration. The subsumption of quarries under governmental control in the Roman period hints at their evaluation as a natural source with repercussions upon the accomplishment of public works (**Georgios Doulfis** in this volume). As regards the actual process of creation and the synthesis of the workforce, quarries in the Cyclades – already in the Archaic period – were manned with specialised stonecutters and sculptors, who carved the marble volumes to an advanced degree, prior to their ultimate refinement (**Georgia Kokkorou-Alevras** in this book).

That the craftsmen made progress *in situ*, while inventing ways to overcome obstacles in the process of making is inferred from the 'blueprint', the guidelines for quarrying in northern Gaul (**Raphaël Clotuche, Damien Censier** and **Sabine Groetembril** in this volume). Cuttings and marks in those open-air workshops indicate a methodical planning of the activity, credited to the input of skilful and experienced quarrymen. The subsequent change of technique with the quarrymen working at different levels/floors enabled them to choose from the stone vein and to cut out blocks of the desired consistency and dimensions.

The backstage of the erection of a colossal sculpture is elucidated, when we take into account the excessive amount of work accomplished at the quarry. **Georgia Kokkorou-Alevras** walks us through the entire procedure, also comparing between techniques implemented in different periods. We actually watch an artefact evolve through the creator's eyes. Examples of what a sculptor faced in case of faulty material,

[9] The overall importance of textile production is reflected in the administrative/managerial texts, often also with religious connotations, already in the Bronze Age; see Michel and Nosch 2010, whose edited volume covers the Bronze Age Near East and eastern Mediterranean.

[10] Gambash *et al.* 2022. We are thankful to Gil Gambash for willingly allowing us access to his team's research when libraries were out of reach, due to the covid-19 crisis.

[11] In the Geology Department of Patras University. Argiropoulos 2017: 55-57; Argiropoulos 2021: 231-234.

[12] Kourou 2023 and 2024.

[13] As we are writing this, a brand new publication is released on the topic: Gatto and Van Haeperen 2023.

for instance, and how this could have impeded the completion of his work, provokes the reader's empathy for the craftsman and thus adds a sentimental dimension to our book. Unfinished/ἡμίεργα sculptural works preserve marks and guidelines analogous to those we observe on architectural blocks. So, this essential first treatment by stonecutters within the confines of a quarry, which was much more advanced than a preliminary roughening, may be extrapolated on the shaping of architectural elements, too. Subtle technical details, such as the double incision outlining the body-form, suggest that figures were sketched by incision before the carving process commenced. Indicative of the diligent preparatory work is the sketching of a statue's outline on the rock-face of the quarry before the marble piece/block was even extracted, no different from the aforementioned 'blueprint', which guided the cutting of blocks at the quarry of Famars (**Raphaël Clotuche, Damien Censier** and **Sabine Groetembril** in this volume).

Open-air workshops, that is, the workshops of the stonemasons who carried out large-scale public projects, such as the building of temples or fortifications, have so far been overshadowed by the respective monuments' grandeur. Particularly the interaction of artists, architects and workforce in general, traceable especially in major sanctuaries, adds a new dimension to the exchange and dissemination of ideas and technical expertise. Throughout the centuries, the mobility of craftspeople – including builders and other specialities – propelled the diffusion of knowledge, the improvement of techniques, the evolution of 'the making'. By juxtaposing the architectural setting and spatial arrangement at Delphi to epigraphic testimonies and material comparanda also from other Classical sanctuaries, **Elena C. Partida** unfolds the immense potential of worksites operating in parallel, their interlocking, cases of merged crews, and the meticulous pre-planning in a major temenos. Considering that monumentality was a common denominator in public, religious, civic or military building programs, the need for a detailed drawing up of the ergonomics in advance was intense. The logistics of a different large-scale building operation, namely the erection of defensive walls on Agathonisi in the Dodecanese, is analysed in depth by **Konstantinos Sarantidis**, who starts from calculations about the necessary manpower, the timeline and budget, also taking into account the available building material, the volume and extent of construction, the levelling of the terrain, etc. Quantitative estimates of this sort allow us to trace the organisation of an open-air stonemasons' workshop. Preparation was an entire process, which preceded the materialising process. By approaching the building procedures at different sites, however, we realise that adjustments were made as required and solutions were improvised on the spot.

Likewise adaptive were the craftsmen in the Roman town *Fanum Martis* in Gaul (Famars in northern France), who – confident in the quality of their raw materials, fabrics and techniques – developed a management system efficient enough to meet the demands of regional, as well as long-distance, trade. Their advanced level of production control and specialisation (analysed by **Raphaël Clotuche, Sonja Willems, Jean-Hervé Yvinec, Marie Derreumeaux, Jennifer Clerget, Nicolas Tisserand, Bérangère Fort** and **Gaëtan Jouanin**) is ascribed to a long-standing tradition, originally brought to the north by Mediterranean potters. Primarily due to its variety in productions, *Fanum Martis* evolved into a centre of processing and distribution, with a pivotal role in the economy of northern Gaul. Handicraft activities were dispersed across the urban tissue, with no particular sector allocated to a specific craft. Differently laid out but equally active commercially, *mutatis mutandis*, was the potters' quarter at Ano Petralona in Classical Athens (illustrated by **Marilena Kontopanagou**). It consisted of clusters of workshops within a short distance from the urban centre of public life. Its location in proximity to the city walls[14] and the harbour, therefore to transportation routes, facilitated the circulation of its products across a broad market beyond the city, as far as the Greek colonies.

Is it possible for a workshop to reflect the current society even if no physical remains of the actual working place have been preserved? Going back to the early historical phases (the Protogeometric period), a variety of pithoi from the settlement of Stamna in Aetolia, presented by **Gioulika Christakopoulou** and **Helene Simoni**, attest to the existence of multiple techniques and specialised knowledge in producing ceramics of the particular typology. The pithoi seem to have evolved from storage vessels to funerary containers (coffins), being adapted to demand. Besides the production structure of this early settlement, the pithoi reveal facets of the concurrent cultural background: their possession by specific individuals indicates resource management, while the transition in their use implies some significance to be set against religion and society in Iron Age western Greece.

Moving further west, in a colonial ambience, we are transferred to a workshop of terracotta figurines in Archaic Magna Graecia,[15] featuring the typical

[14] Noteworthy at this point is the recent work by Vincenzo Capozzoli (2024), who traces the layout of *demes* in relation to the city walls, even the enigmatic ones, traceable via indirect testimonies rather than physical finds.

[15] On the topic, and artisanal production in general, see the just published volume edited by De Cazanove *et al.* 2023b.

combination of the mould technique with manually crafted/shaped parts. **Eukene Bilbao Zubiri** brings forward the richness and diversity of practices employed by the coroplasts, which allow us to grasp the plurality in expression, but also in the synthesis of the population. The perseverance or co-existence of traditions, the codification of the imagery/iconography with religious connotations and, eventually, the different trends, stylistic influences and mixed techniques are taken to mirror cultural processes in a multicultural society. Local traditions and knowledge seem to reflect socio-cultural belonging and, in this respect, workshops clearly demonstrate how they fit into a multifaceted 'lived world' (after the all-encompassing German term 'Lebenswelt').

In the present volume, the space, the setting that enveloped the makers is consistently taken into account; all the different settings examined – in different geographical areas – manifest how the premises of creation may affect creation itself. In each case, the natural or built environment was differently exploited and adjusted to the particular needs. Artisans always made the best of it. **Raffaella Da Vela**'s extensive study of the Etruscan pottery production on both sides of the Apennines builds on the theoretical framework of local knowledge combined with the setting, and introduces the term 'knowledgescapes'. The mountainous region is perceived as a contact zone rather than a barrier, while the craft is perceived as a social or societal constituent. Due to the multiple encounters fostered by this contact zone, the craft was susceptible or rather open to technical innovation. Local knowledgescapes are thought to define dynamic networks of material and immaterial resources, in turn related to the socio-cultural dynamics. In the *ergasteria* of the northern Apennines, tradition and innovation were part of a daily routine comprising production, crafts and social values.

The socio-historical setting/context also had an impact upon artisans. Underlying factors, usually stemming from politics and military coalitions, could instigate but also disturb or even disrupt a creative process. In his reconstitution of the ambitious building program on the island of Thasos in North Aegean, **Jacques des Courtils** demonstrates that the spread of a certain fashion – in this particular case, Athenian architectural practices – was occasionally conscious, deliberate and fostered by interstate relations or alliances. So, the dissemination of techniques and traditions did not always result from the role of itinerant craftsmen as 'carriers'. Unfortunately on Thasos political grudge eventually led to the abandonment of a worksite. By comparison, the radiance of the reputable Athenian achievements in architecture is imprinted upon worksites of Asia Minor in a... smoother manner. From specific traits on sepulchral monuments of Xanthos in Lycia **Laurence Cavalier** is able to 'read' that their architects were familiar with Athenian techniques, which they consciously implemented alongside their own indigenous modes. Their motivation could simply be a matter of taste.

Adaptive reuse is a big chapter in the history of construction, approachable from the viewpoint of aesthetics, as well as logistics and ergonomics. To some extent, recycling depended on circumstances, as it could take place hastily under pressure or at leisure. A piece could be put to use analogous to its original function, or immured, or otherwise repurposed. By studying such decisions and 'gestures', we gain a glimpse into what may have happened in grandiose ancient sanctuaries and necropoleis. Apparently they did not turn into open-air museums, treated as untouchable and unchangeable revered places. On the contrary, they remained vivid by adapting to (or serving) current conditions.

Investigating the chaîne opératoire and its applicability to objects in secondary use, **Constanze Graml** concentrates on the re-use of Greek funerary monuments and illustrates that their deconstruction and re-employment in different settings, where they could be visible or not, was quite common. While dealing with pragmatics, namely the actual, physical handling of the marble furnishing of Greek funerary monuments, **Graml** raises matters of ethics and sentimentalism, touching upon grief, remembrance and religious beliefs. In addition to her conclusion that adaptability and a practical mentality predominated against wasting ready-made and re-usable material, she manages to absolve/exonerate the reworking and repurposing of a sepulchral monument. In the light of this, any assumption-based attempt to characterise such a practice as religious misconduct should be treated with scepticism and caution, given the absence of contemporaneous testimonies. Instead, Christian values unconsciously extrapolated by scholars are likely to have shaped the perception of re-use as supposedly sacrilegious.

Should we reckon with teams of masons specialised in selecting, trimming and adapting spolia? To what extent was this planned rather than a rescue operation? As regards the spoliation and management of spolia, was the edict by Majorianus realistic and enforceable? Along the lines of aesthetics, were the re-employed spolia concealed or on display creating some particular pattern[16] and therefore visual impact? The above questions represent a modern mind's concern (if not obsession) with the hidden meaning behind re-use, whereas the stonemasons actually involved in it would

[16] As in the Castle of Patras, where the immured spolia were on display and almost recreating courses of the source-building, interspersed with column-drums.

probably be preoccupied with practical issues of moving, cutting and re-shaping older blocks. An entire building project could be designed around the available spolia. Based on her observations of different sites in Late Roman Asia Minor, **Anna M. Sitz** shows that decisions concerning the exploitation of spoliated material were made *ad hoc*, without necessarily conforming to legal pronouncements. Instead, local conditions affected the motivations and methods of spoliation. Whereas aesthetic factors could be a priority in large-scale projects, it appears that, in smaller-scale projects, the builders gravitated towards utility. Although one might assume that such 'informal' reworking operations did not require much competence and specialisation, on the contrary, the traces of workmanship on the spolia reveal the craftsmen's know-how and skill.

A different approach of the chaîne opératoire is attempted by **Susanne Bosche**, who juxtaposes work to work processes, namely the concept of chaîne opératoire. Having her theoretical approach projected against the example of the Elgin Lyre, **Bosche** discusses various discrepancies between the purely theoretical concept on the one hand, and the sensory, knowledge-based approach (applied in material studies) on the other. Her paper's backbone is the oscillation between three levels, namely, a highly theoretical one, which includes formal descriptive concepts, a theoretical but content-charged level with concepts related to a 'general reality' and a third level of a 'historical reality.'

Tightly associated both with production *ex novo* and cases of re-usage is the aspect of aesthetics, which surfaces often in the pages of this book. The aesthetic impact of ancient sculpture would be different, if parts of the stone surface had been coloured, to accentuate details of a figure's garment, for instance. It would be entirely different, however, if the total surface of a marble statue was painted, and dramatically different, if the face, too, was colourful. Raised already by early archaeologists,[17] and apparently encouraged by the extant Egyptian statuary of painted limestone, the matter has been vividly debated ever since.[18] Most recently, samples taken from a marble centaur head belonging to the Parthenon sculptural programme[19] (today in the National Museum of Denmark) were analysed, to explain the traces of a brown coating. In particular, the aim was to determine whether this brown film could have been developed by some biological organism such as lichens, bacteria, algae or fungi, or whether it was the remains of some paint layer. The samples were subjected to a number of different analyses[20] but no sort of biological trace was detected, except perhaps a bird's egg that had broken on the marble in antiquity. Even less probable is that the marble surface had been painted.

The existence of a local workshop of sculpture at Epidaurus in the Roman period is inferred from the large number of re-used and reshaped sculptural pieces of that era.[21] Interestingly in this corpus there is no reference to colour traces, even though there is evidence for the gilding of parts of statuettes, including votive reliefs. What appeared to be the traces of a reddish-brown or sometimes purple pigment eventually turned out – by chemical analyses – to be the binding agent (a sort of glue) between the marble surface and the attached thin golden sheets. The polished surface of the marble was meant to simulate the texture of the ivory body-parts of chryselephantine statues. This was the aesthetic effect they wished to achieve.

The application of paint layers on ancient sculpture is revisited here by **Amalie Skovmøller**, who conducts an experiment on the potential reconstitution of polychromy on a Roman portrait. Moreover, seeking the whereabouts of a painter's actual workshop, **Skovmøller** proposes that an encaustic painter was based in a sculptor's workshop unearthed at Aphrodisias. So, the two specialists worked in the same premises, if not also in co-ordination.

[17] On Hellenistic funerary monuments, in particular, see Abramitis and Abbe 2019.

[18] As concerns cultic environs of the Roman period in particular, Vicky Jewell (Jewell 2024) draws attention to polychromy in temples of Mithras, by examining the way colours were perceived by ancient writers and how this may have contributed to a haptic-visual experience of Mithraic ritual spaces. By 'seeing colour in Classical art', Jennifer Stager (Stager 2022) contributes to the discussion. Other currently conducted projects cover areas/cultures beyond the Greco-Roman Mediterranean world: the Tracking Colour Project, housed at the Ny Carlsberg Glyptotek Copenhagen (<http://trackingcolour.com/>, last accessed 20 March 2024) and the project 'PolyChroMon Colours Revealed – Polychromie römerzeitlicher Monumente der Donauprovinzen', under the auspices of the Austrian Academy of Sciences (<https://www.oeaw.ac.at/oeai/forschung/altertumswissenschaften/antike-religion/polychromon>, last accessed 20 March 2024).

Under publication is the special issue 'Polychromy in Ancient Sculpture and Architecture' of the Heritage journal, edited by Joanne Dyer (<https://www.mdpi.com/journal/heritage/special_issues/polychromy_sculpture_architecture>, last accessed 20 March 2024), in which, among other important case studies, the above-mentioned projects contribute.

[19] On the detection of traces of Egyptian blue on pedimental statues of goddesses from the Parthenon, held at the British Museum, see https://www.archaeology.org/issues/544-2403/digs/12133-dd-greece-parthenon-paint-job?fbclid=IwAR3HZdGKYKnBIQn2huJXYhlcuDrIbbDCaCtkJjsl3npTidkKXsLfqjy4STM>, accessed 13 March 2024.

[20] Including protein analysis and Laser Ablation Inductively Coupled Plasma Mass Spectrometry. In 1851 the German chemist Justus von Liebig determined that the brown film contained oxalates, i.e. salts of the oxalic acid. This was confirmed by later analyses, though where it originated from could not be resolved. Members of the research team: Kaare Lund Rasmussen (Physics, Chemistry and Pharmacy, University of Southern Denmark), Frank Kjeldsen and Vladimir Gorshkov (Department of Biochemistry and Molecular Biology at University of Southern Denmark), Bodil Bundgaard Rasmussen (former Head of the Antiquities Collection at the National Museum of Denmark), Delbey Thomas (Cranfield University), Ilaria Bonaduce (Università di Pisa), <https://lnkd.in/dWf7hwTe>, accessed 30 January 2023.

[21] Katakis 2002.

The manifold approach of ancient workplaces finally offers insight into possible future research. The alabaster quarries illustrate the rich geology of Tunisia (**Ameur Younès** in this volume) and we can only envisage the optical effect of such a colour spectrum on the respective buildings. It would be interesting to explore whether these varieties have been recognised beyond Tunisia, and whether their exploitation had perhaps started in earlier times. If inaugurated in the Roman Imperial period, should these quarries be ascribed to an initiative of the Roman authorities, or some local elite class?[22]

Evidence of an ancient military workshop of the Sassanid era, AD 224 to 651, was found in a mountainous region of northern Iran,[23] in September 2023. Measuring 80m by 100m, the cave's entrance is said to be one of the largest natural ones in the world. Its identification as perhaps an arms-making installation is induced from the metal melting furnace and the variety of weapons, ranging from arrowheads, daggers and harpoons to half-made swords. Obviously, scope for new discoveries is infinite.

As we had hoped while setting out the aims of this endeavour, a broad range of topics – both thematically and geographically – is addressed on occasion of new finds from Greece, North Africa, the Black Sea, Italy and Central Europe. For the realisation of this book we heartily thank all contributors, our dear colleagues and teachers, who willingly responded to our proposal, entrusted us with the outcome of their research, collaborated with us throughout the reviewing and editing process, and endured every challenge posed by the pandemic and its aftermath. For the book-cover's artistic design, we are grateful to Petros Georgopoulos and Ilias Partidas. We are indebted to the University of Regensburg for kindly, willingly and generously funding the Open Access publication of this volume. Last, but not least, we sincerely thank Professor David Davison and Mike Schurer of the Archaeopress, for yet another impeccable co-operation.

The Editors
Elena C. Partida and Constanze Graml
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Bibliography

For the works cited above, please refer to the bibliography compiled at the end of the volume.

[22] The publication on Marmor Numidicum (Beck, D.M. 2024. *Simitthus 6: Marmor Numidicum. Gewinnung, Verarbeitung und Distribution eines antiken Buntmarmors*. Wiesbaden: Reichert Verlag) may shed light on our queries, but was not yet available to us while writing our introductory section.
[23] Announced online by the Archaeology Information Network.