



HÁSKÓLI ÍSLANDS

Hugvísindasvið

Purple Murex Dye in Antiquity

Ritgerð til BA-prófs í latínu

Marianne Guckelsberger

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Introduction

Until the Industrial Revolution, textile production was the most labour-intensive of all crafts and its cultural, social and economic significance can hardly be overrated. Textiles provided shelter from the elements, gave social signals (“I am married” or “I am a slave”), they were used as a mnemonic device to record events or stories as for instance Philomela’s tapestry or the Bayeux tapestry. They could also be used for magical purposes like the valkyries did in the Old Norse skaldic poem *Darraðarljóð*, and were of such great economic value as to even represent currency, and so forth. There are several factors that decide the quality of a textile, the material (wool, silk, flax etc), the fineness of the yarn, the woven pattern, and colours. Textiles were dyed systematically already in Antiquity, and there is evidence that the Minoans dyed reds and yellows probably from madder and saffron, blue from woad, but the most highly prized dye was undoubtedly royal or Tyrian purple, since it was colourfast.¹

People in prehistory and antiquity were conscious of the immediate and symbolic value of textiles as their production was present on all social levels, whereas modern man normally is not aware of how garments are produced industrially, much less has an understanding of the tools and technical aspects of the manual production of yarn, textiles and dyes. Only in the last few decades have textile studies been recognised by textile experts, archaeologists, historians, artists and others as an important field of studies, with an increasing number of congresses, publications, dyeing experiments and the interdisciplinary collaboration of scholars of various fields.

Being a student of Latin as well as a spinner, weaver and dyer, I decided to experiment with lichens from Iceland, Canada and Cap Verde to dye purple with. While doing my research I realized the wealth of information on ancient purple dyeing from sea shellfish that is scattered throughout history. In this paper I shall undertake to outline the development and significance of *murex* purple-dyeing in various periods of history, beginning with the earliest archaeological evidence during the Aegean Bronze Age and ending with an outlook to purple-dyeing alternatives used by the Anglo-Saxons. The focus will be on Latin classical literary sources. When other sources are used, their English translation will be quoted. The production

¹ Barber 1994:113 f.

process of *murex* dye as it appears in these sources will be described and compared to modern experiments where this is possible.

The earliest evidences for *murex* purple-dyeing date to the Mediterranean Bronze Age. They come from ancient Qatna in Syria in the early second millennium, and from the settlement at Coppa Nevigata in the province of Foggia, Italy, where the extraction of purple from *murex* snails started about 1800 BC. Apart from these instances, the technology of purple-dye production is usually accredited to the Minoans where it was a vital part of the palace economy. The Phoenicians along the coast of the Levant perfected the art and were able to produce various grades and shades of purple of legendary quality, a process described in some detail by Pliny.

Purple took on a new dimension during the Roman Empire, where it now became reserved for the emperors and upper classes of society. This part of the paper will present the Roman dress in general and the use and restrictions of purple decorations of the toga in particular. An example of the ceremonial display of power is the performance of *adoratio purpurae* as a sign of formalized worship of the Emperor. Class distinctions were rigidly enforced by a succession of sumptuary laws and by economic measures like Diocletian's Edict on Maximum Prices. Two historically attested examples of the consequences for the real or alleged use of purple, as related by the historian Ammianus Marcellinus, round up this chapter.

The paper ends with an outlook on how the quest for the colour purple was pursued in a part of Europe far away from the purple-dye centres of the Mediterranean. From written and archaeological sources we learn that in Ireland, in the absence of *murex* snails, its northern cousin the dog whelk, *nucella lapillus*, was used in the eighth century to illuminate parchment manuscripts. Even though the purple-dyeing industry with dog whelk of the Anglo-Saxons was on a small scale only, the esteem for purple was undiminished, as we can see by The Venerable Bede's praise of the most beautiful red colour with all the properties that dyers dream of, i.e. resistance to light, water and ageing.²

1. The shells and their colours

Of all the colours on the red spectrum the colour purple in antiquity was the most valued. Purple dyes are obtained from several marine shellfish of the Muricidae and Thaisidae families, but Tyrian or Royal Purple from *Bolinus brandaris* (formerly known as *Murex*

² ... *rubor pulcherrimus nullo unquam solis ardore, nulla valet pluviarum iniuria pallescere; sed quo vetustior, eo solet esse venustior.* Bede. *Ecclesiastical History of the English People* 1.1.

brandaris), *Hexaplex trunculus* (formerly known as *Murex trunculus*), and *Stramonita haemastoma* (formerly known as *Purpura haemastoma*) were the most highly prized.³ Its great popularity was due to its fastness to washing, light and rubbing, and its iridescent shine, and also to the fact that its production was time consuming, smelly and labour intensive, which made purple murex dye a highly profitable commodity and consequently a symbol of wealth and power in the ancient Mediterranean world.

In his *Historia Naturalis* Pliny refers to several species that produce the purple colour. Unfortunately his classification does not coincide with modern classification,⁴ but with a reasonable amount of certainty we can identify some of them. Pliny speaks explicitly of two kinds of sea snails, the smaller ‘bucinum’ and the bigger ‘purpura’ or ‘pelagium’, which he subclassifies into several other kinds.⁵ What he calls ‘bucinum’ is most probably *Thais haemastoma*,⁶ because indeed it resembles a conch which produces the sound of a ‘bucina’ (trumpet). ‘Pelagium’ has been identified as *Murex trunculus*,⁷ and gives an “all too dark colour” (‘*nimia nigritia*’ or ‘*nigricans*’).⁸ A third species is the ‘dialutense’, which has been identified as *Murex brandaris*, and was said to give by far the best of all purples (*mire aptum conchylis, et longe optimum purpuris*).⁹

Of ‘bucinum’ Pliny says that its colour is very light and thin (*levius atque dilutius*)¹⁰ and inferior because it is not fast (*bucinum per se damnatur, quoniam fucum remittit*).¹¹ A dye-stuff that is not colourfast may be unsuitable on its own, but it can still be used in combination with others, either in a mixed dye-bath or in consecutive dye-baths. ‘Bucinum’, mixed with ‘pelagium’, is said to have an aura of austerity and a sheen that is associated with

³ Zideman 1990:99: “Banded dye-murex (*Phyllonotus (Murex) trunculus*) lives in shallow shore waters around the Mediterranean Sea at depths from 1,5 to at least 12 meters ... on rocky bottoms or coarse sand covered with pebbles. The shell has blunt spikes arranged in a spiral band and a broad channeled beak. ... These shells have been caught in modern times, just as they were in antiquity, by lowering mussel-baited wicker baskets into the depths. The second predominant species of purple shell, spiny dye-murex (*Bolinus (Murex) brandaris*), occupies a sandy, silty, or muddy habitat at considerable depths (10 to 150 meters) off the Mediterranean coast. The shells of this species are characterized by an elongated beak and prickly spikes. ... *Thais haemastoma* dwells on rocks in waters less than 150 cm deep, both in the Mediterranean Sea and, more widely, on the Atlantic coasts of Africa; thus, it is particularly accessible, although less abundant than the other species. ... We identify this rock shell as Pliny’s “trumpet-shell” (*buccinum*) that did not yield a fast dye alone and was therefore used in admixture with murex species (*pelagia*) for *purpuras* dyeings.”

⁴ Steigerwald 1986:4

⁵ ... *duo sunt genera: bucinum minor concha ad similitudinem eius qua bucini sonus editur — unde et causa nomini —, rotunditate oris in margine incisa; alterum purpura vocatur.* Gaius Plinius Secundus. *Naturalis Historia* 9.61.130.

⁶ Steigerwald 1986:6

⁷ Steigerwald 1986:6

⁸ Gaius Plinius Secundus. *NH* 9.62.134; 9.62.135

⁹ Gaius Plinius Secundus. *NH* 9.61.131

¹⁰ Gaius Plinius Secundus. *NH* 9.61.131

¹¹ Gaius Plinius Secundus. *NH* 9.62.134

coccus, an insect dye (*Kermes vermilio*).¹² Since the colour of *coccus* is that of a dark rose,¹³ we can infer that ‘bucinum’ was dark red and glossy.

Dye-baths can be mixed in different proportions which give different colours. One of them was the highly valued so-called amethyst-purple, also called *hyacinthina*, *amethystina* or *ianthina*,¹⁴ which required two hundred pounds of ‘bucinum’ juice and one hundred and eleven pounds of ‘pelagium’ juice.¹⁵

For Tyrian purple, which was valued most of all, Pliny advises to dip the wool first in uncooked and raw ‘pelagium’, and then develop the colour by dipping it into ‘bucinum’. The resulting colour was that of clotted blood, blackish with an iridescent shine when held up into the light.¹⁶ This is the famous Tyrian purple, also called ‘*dibapha*’, ‘*blatta*’ or ‘*oxyblatta*’ because of the double-dyeing process. In the later Roman Empire these two top grades, the Tyrian and the amethyst-purple, were the so-called *sacer murex*, heavily priced and restricted, with severe penalties for those who wore them unauthorized.¹⁷ Most purple fabrics, though, were dyed in cheaper versions of purple, if the colour was not altogether faked. If for example red yarn is used for the warp and blue for the weft, it gives the illusion of purple when looked at from an angle.¹⁸

2. Tyrian or Imperial purple-dye production in Antiquity

Tyrian purple-dye entered the scene with a big bang, so to speak. Even the oldest purple-dyed textile remnants found so far reflect a fully developed art. The Bronze Age royal palace at ancient Qatna, Syria, which was destroyed by invading Hittites in 1340 BC, contained in its tombs textile remains of exceptionally high quality, very finely woven with up to 16x70-80 threads/cm².¹⁹ The chemical analysis revealed that they were dyed with *Hexaplex trunculus*, the same Tyrian or Royal Purple mentioned by Pliny.²⁰ To weave such fine weaves one needs extremely finely spun yarn and the complete mastering of the spinning technique, and no

¹² *pelagio ad modum alligatur nimiaequae eius nigritiae dat austeritatem illam nitoremque qui quaeritur cocci*. Gaius Plinius Secundus. *Naturalis Historia* 9.62.134

¹³ *...in cocco, qui a rosae nigrantis gratia nitido trahitur suspectu*. Gaius Plinius Secundus. *NH* 21.22.45.

¹⁴ Biggam 2006:40

¹⁵ *summa medicaminum in libras . . . vellerum bucini ducenae et e pelagio CXI. ita fit amethysti colos eximius ille*. Gaius Plinius Secundus. *NH* 9.62.135.

¹⁶ *at Tyrius pelagio primum satiatur viridique cortina, mox permutatur in bucino. laus ei summa in colore sanguinis concreti, nigricans aspectu idemque suspectu refulgens*. Gaius Plinius Secundus. *NH* 9.62.135.

¹⁷ Biggam 2006:40. See Codex Iustinianus XI.9 *De vestibibus holoveris et auratis et de intinctione sacri muricis*.

¹⁸ Ruscillo 2005:100

¹⁹ James *et al.* 2009:1113

²⁰ James *et al.* 2009:1109

doubt such high quality textiles were of great value and only for the elite of society. This find is also proof of the colour fastness of purple dyes, since they are still traceable today.

Syria borders on the eastern Mediterranean Sea, the cradle of *murex* dyeing, with the purple-dyeing industry situated all along the Levantine coast. It has been suggested that purple-dyeing was a universal practice among all ancient peoples living close to the sea, because of their intimate knowledge of the creatures of the sea.²¹ It is quite possible that the dyeing properties of the *murex* snails were found accidentally, as illustrated by a legend, narrated by the Greek writer Julius Pollux. There it says that Herakles' dog once chewed on a *murex* shell on the shores of Tyre and his mouth turned purple, thus revealing the dye. When Herakles told King Phoenix of his discovery, he decided that the rulers of Phoenicia should wear purple as a royal symbol.²²

2.1 Minoan purple-dye industry

The first centres of purple-dyeing are found in the eastern Aegean Sea on the islands of Crete and Lesbos, in southwest Turkey, and in the Arabian Gulf,²³ but the Minoans on Crete are thought to have developed Royal purple-dyeing into a large-scale industry and exported both purple-dyed textiles as well as the technology during the Middle Minoan period or about 1700-1600 BC. About a century later the technology had spread to the Levant and has since been associated with Tyre and the Phoenicians.²⁴

In the early second millennium BC the Minoan palaces had emerged as a centre of an elite society of great wealth which possibly was generated by the export of high-quality purple-dyed textiles and manufactured metal goods, in exchange for raw metals from Anatolia and Mesopotamia which are lacking on the island.²⁵ Of the great number of tablets from Knossos that deal with cloth production, four refer to purple. One tablet dating to the 13th century BC reads *po-pu-re-jo* (the last syllable –jo- is tentative) meaning purple and most likely refers to cloth of royal type *wa-na-ka-te-ro* 'of the wanax', i.e., 'royal', though it does not give an ideogram for cloth.²⁶ It has been concluded that

... [o]n Mycenaean Crete, purple dye was applied to a particular kind of cloth which therefore was in demand (this same kind of cloth was exported from Mycenae to Thebes). In at least one

²¹ Barber 1991:228

²² Pollux, J., *Onomasticon* 1.45-48

²³ Strabo *Geography* XVI,2; Singer 2008; Stieglitz 1994; Edens 1999; Forstenpointner *et al.* 2007.

²⁴ Reese 1984

²⁵ Burke 1999:76

²⁶ Palaima 1991:291. Tablet KN X 976 + 8263. I am very grateful to Hedvig Landenius Enegren for drawing my attention to this publication and for her comments on my paper.

instance, some type of purple material or workers of purple dye or purple-dye workshop was designated as 'royal', thus suggesting that the dye considerably enhanced the value of cloth products. There may have been a center of production for purple-dyed cloth in the district of Tylissos.²⁷

Industrial purple dye-works where textiles for export or at least the dye was manufactured are found in many Cretan sites, for instance on the small island of Kouphonisi southeast of Crete, on Palaikastro and Kommos on Crete, dating to the early and middle MM period, ca. 20th-18th century BC.²⁸ At Akrotiri on the island of Thera (Santorini) pigment made of *murex* was found,²⁹ and frescoes at Akrotiri depict priestesses and noble ladies with purple red and purple stripes on their dresses.³⁰

The importance of purple-dyeing for the Aegean economy and politics can be highlighted by the case of some itinerant purple-dyers from the western Anatolian coast, whose story is preserved on a cuneiform tablet.³¹ These men were in the service of a Hittite king (probably Muwatalli II, 1295-1272 BC), who had send them to Lazpa (Lesbos) to make offerings at the shrine of a local deity. In an upheaval they were captured by mistake, and sent a letter of complaint to the king, explaining that they had come over the sea to Lazpa only to render their tribute to the deity in the form of purple-dyed wool. One can speculate whether their visit was religiously inspired or whether there was a political purpose to it. If that was the case, the Anatolian purple-dyers simply served their king in his claim on Lazpa “in an intense competition over a lucrative and prestigious industry of the Aegean.”³² Needless to say the purple-dyers were set free in the end, because they were highly valued craftspeople and their king would not easily let go of such a lucrative business. In other cases specialized craftsmen who performed services for royals or religious leaders were rewarded with land grants.³³ Great amounts of purple-dyed wool was traded and paid as tribute to courts and shrines in the Aegean Bronze Age, Ugarit for instance was required to send a yearly tribute of “golden cups, linen garments and purple-dyed wool to the Great King, to the queen, to the crown prince and five other Hittite dignitaries. The king received five hundred shekels of blue-purple wool and five hundred shekels of red-purple wool.”³⁴ Purple wool was not always given voluntarily as a tribute, it was also taken forcefully as spoils of war. The royal annals of the Assyrian king Assurnasirpal II (reigned 883-859 BC) inform us that when he sacked the

²⁷ Palaima 1991:291

²⁸ Burke 1999:79

²⁹ Aloupi *et al.* 1990:20

³⁰ Stieglitz 1994:53

³¹ Singer 2008

³² Singer 2008:32

³³ Singer 2008:28

³⁴ Singer 2008:29

city of Suru (in today's Syria) he took as booty purple wool and red-purple, evidently precious enough to be named in the same breath as gold, silver, horses and precious metal objects.³⁵

2.2 Phoenician purple-dye industry

While the Minoans had developed Royal purple-dyeing into an industry to finance their palace system, the Phoenicians now perfected the art of purple-dyeing and with its proceeds financed the wealth of their city-states. They established a legendary reputation for manufacturing and trading the most expensive, high-quality dyed fabrics, and in search for *murex* set up colonies all around the Mediterranean and along the Atlantic coast of Spain and Northern Africa, where piles of discarded shells can still be seen today.³⁶ By that time the Cretan purple production had declined, possibly due to over-fishing,³⁷ a fact that drove Phoenician sea-farers to explore new profitable shores. Some of the oldest archaeological evidence for Phoenician purple-dye production comes from the harbour of Ugarit on the north coast of Syria (15th-13th century BC), where part of a kettle was found, still stained with purple, together with workshops of the dyers on the shell banks,³⁸ and from Sarepta in Lebanon, where a pot shard with purple residue has been dated to the 13th century BC.³⁹ Akko, Tyre and Sidon on the eastern Mediterranean coast show that the Phoenicians established settlements and dye factories wherever trade was profitable.⁴⁰ Strabo, the Greek geographer and historian (64/63 BC – ca. 24 AD), in his *Geographica* recognizes their superior seamanship and skill in purple-dyeing as reasons for Tyre's wealth.

The city was also unfortunate when it was taken by siege by Alexander; but it overcame such misfortunes and restored itself both by means of the seamanship of its people, in which the Phoenicians in general have been superior to all peoples of all times, and by means of their dye-houses for purple; for the Tyrian purple has proved itself by far the most beautiful of all; and the shell-fish are caught near the coast; and the other things requisite for dyeing are easily got; and although the great number of dye-works makes the city unpleasant to live in, yet it makes the city rich through the superior skill of its inhabitants.⁴¹

The Phoenicians developed the two top grades of the purple dyes, the red-purple Imperial or Tyrian purple, also known as *blatta* or *oxyblatta*, especially the most expensive *dibapha*

³⁵ [http://cdli.ox.ac.uk/wiki/doku.php?id=assurnasirpal_ii&s\[\]=purple](http://cdli.ox.ac.uk/wiki/doku.php?id=assurnasirpal_ii&s[]=purple)

³⁶ Barber 1991:229

³⁷ Barber 1991:229

³⁸ Barber 1991:229

³⁹ Cooksey 2001:736,740.

⁴⁰ Barber 1991:229

⁴¹ Strabo. *Geography* 16.2.23

(‘double-dyed’), and the blue-purple ‘amethystine’ (*hyacinthina*).⁴² Which type of purple was made in a particular area depended on the predominant species; at Tyre for example *Bolinus brandaris* (dialutense) was used, which gives a red purple, whereas at Sidon and Sarepta blue purple *Hexaplex trunculus* (pelagium) was used.⁴³ It has been observed that the different species were always kept separately.⁴⁴

In his *Natural History* Pliny says that “in Asia the best purple is that of Tyre, in Africa of Meninx and the parts of Gaetulia that border the Ocean, and in Europe that of Laconica.”⁴⁵ In fact, still today the shores of the Mediterranean Sea, the Persian Gulf, North Africa, the vicinity of Phoenician cities, and other places are strewn with enormous heaps of discarded murex shells. An example of the sheer scale of purple production, though of a later date, is the large purple dye installation from the sixth century at Andriake in south-west Turkey, where an area of 300m³ of broken shells represents the incredible number of 60 million processed purple snails.⁴⁶

2.3 Purple in Greek mythology

The use of purple is attested in several places in Homer’s epics, the *Odyssey* and *The Iliad*. During his travels Odysseus comes to Circe’s lavishly decorated home with tables of silver, golden baskets and chairs covered with purple rugs.⁴⁷ Elsewhere Odysseus draws his purple cloak over his face so that the Phaeacians don’t see him weeping⁴⁸ and when he returns home after twenty years, his son Telemachus is moved to tears “when he heard his father’s name, and with both hands held up his purple cloak before his eyes.”⁴⁹ We also hear of a handmaid bringing in “beautiful gifts, - a golden distaff and a basket with wheels beneath..., a basket of silver, and with gold were the rims thereof gilded. This then the handmaid, Phylo, brought and placed beside her, filled with finely-spun yarn, and across it was laid the distaff laden with violet-dark wool.”⁵⁰ The mother of Nausicaa sits by the fireside spinning purple yarn.⁵¹ In Homer’s *Iliad* we see Helen “working at a great web of purple linen, on which she was

⁴² Biggam 2006:40

⁴³ Ziderman 1990:99

⁴⁴ Steigerwald 1987:5, footnote 48

⁴⁵ *Tyri praecipuus hic Asiae, Meninge Africae et Gaetulo litore oceani, in Laconica Europae.* Gaius Plinius Secundus. *NH* 9.60.127

⁴⁶ Forstenpointner *et al.* 2007:208

⁴⁷ Homer. *Odyssey* 10.350

⁴⁸ Homer. *Od.* 8.83

⁴⁹ Homer. *Od.* 4.115

⁵⁰ Homer. *Od.* 4.130ff.

⁵¹ Homer. *Od.* 6.50

embroidering the struggles between Trojans and Achaeans,⁵² and Hector's ashes are gathered in a golden urn covered with a purple cloth.⁵³ It is an interesting detail that the women are spinning purple wool, because it means that not only was cloth purple-dyed, but also raw wool, which is a prerequisite for pattern weaving, for which there are so many examples in Greek mythology. Three examples may illustrate this: on a Greek vase from the early 5th century found at Chiusi, Odysseus' wife Penelope is depicted in front of her warp-weighted loom,⁵⁴ weaving the tapestry by day which she is going to unravel by night to fool her suitors. Next is the story about the mortal weaver Arachne (incidentally the daughter of a purple-dyer named Idmon of Kolophon), who in a weaving contest with the goddess Athene wove a most wonderful tapestry using purple yarn, depicting the gods and their promiscuous love escapades. Even Athene had to admit that Arachne's tapestry was flawless, which infuriated her so much that she destroyed the loom and the tapestry and changed Arachne into a spider.⁵⁵ The last example is that of Philomela who wove into tapestry with purple threads her heartbreaking story of how she was first raped and then had her tongue cut out.⁵⁶

3. For whom was purple in Antiquity before the Roman Empire?

From the sources discussed it seems that from early on purple was connected to deities, kings, queens and the higher stratum of society. As we have seen, purple was used in politics in the form of tributes made to foreign deities and rulers, specialized craftsmen were transferred between palaces in an effort to expand influence, and dyed fabrics were exported in exchange for other raw materials. Considering the high price and symbolic association with power the logistic effort was worth its while, since there was little bulk and great profit in the purple trade. The purple-dyed textiles of the royal tombs of Qatna, the frescoes at Akrotiri, the purple-dyed cloth manufacture of the palace at Knossos, the purple-dye offerings on Lesbos and the tributes paid to kings and queens all indicate that purple was for gods, kings and the elite, or those who could afford it. Its significance is deeply rooted in Asian colour symbolism, purple-red being the colour of "light and life and divinity, and of blood – the very substance of life and death and lineage, and the spillage of battle and conquest."⁵⁷ It served to legitimize "the natural order" and the political power of the elite,⁵⁸ and was simply considered

⁵² Homer. *The Iliad* 3.76

⁵³ Homer. *The Iliad* 24.776

⁵⁴ Barber 1991:108

⁵⁵ Ovid *Metamorphoses* VI,9ff

⁵⁶ Ovid *Metamorphoses* VI,575ff

⁵⁷ Elliott 2008:178

⁵⁸ Edens 1999:84

the most beautiful colour, as we learn from Plato who lets Socrates say to his disciple Adeimantus: “It is as if we were coloring a statue and someone approached and censured us, saying that we did not apply the most beautiful pigments to the most beautiful parts of the image, since the eyes, which are the most beautiful part, have not been painted with purple but with black.”⁵⁹

From its beginnings in the Minoan culture the colour purple denoted the high rank and power of its wearer and thus presented a strong incentive to establish a purple industry, whether controlled by private entrepreneurs or publicly by state officials shall not be discussed here. Obviously purple garments were not only owned by gods and kings, but also by non-royal officials as the Hittite example above shows. Like gold, purple was obviously for elite consumption and political tactics, but this is not comparable to the imperial monopoly and the sumptuary laws in Rome some centuries later, when the death penalty could be imposed on any unauthorized person wearing imperial purple.⁶⁰ The process of the codification of Royal Purple in the Roman Empire will be examined below.

4. The Dyeing Process

4.1 Baiting

The first step in the dyeing process of course is to collect the *murex* snails. According to Pliny the best season for taking them is after the rising of the Dog-star, or else before spring.⁶¹ The Dog Star or Sirius is the brightest star in the night sky, and belongs to the constellation *Canis major*. Just before summer solstice it becomes visible above the eastern horizon for a brief moment before sunrise, after some weeks when it had not been visible.⁶² According to Pliny the best time to collect the *murex* snails is thus either before spring or else after summer solstice.

In his treatise *De architectura* Vitruvius says that the colour varies greatly depending on its geographic origin, and that *murex* from Pontus and Gaul give a black purple (*ater*), being nearest to the north. Going from north to west the purple is bluish (*lividus*), from due east and west comes a violet purple (*violaceus*), while southern countries give a red purple (*ruber*), which is also found on Rhodos and other regions near the equator.⁶³ That the colour

⁵⁹ Plato. *The Republic* 4.420c

⁶⁰ Singer 2008:31

⁶¹ *Capi eas post canis ortum aut ante vernum tempus utilissimum, quoniam, cum cerificavere, fluxos habent sucos.* Gaius Plinius Secundus. *Naturalis Historia* 9.62.133

⁶² Wikipedia “heliacal rising”

⁶³ *itaque quod legitur Ponto et Gallia, quod hae regiones sunt proximae ad septentrionem, est atrum. progredientibus inter septentrionem et occidentem invenitur lividum. quod autem legitur ad aequinoctialem*

is affected by several facts is confirmed by both classical authors,⁶⁴ scholars⁶⁵ and modern purple-dyers,⁶⁶ who have also observed that the time of the harvest, the moon, size, age, and food of the *murex* snails will influence the colour.

Murex snails are carnivorous and are collected in small baskets with large meshes, baited with cockles, which are cast into the sea.⁶⁷ Practical research has shown that hand collection *and* baited traps are the most efficient way to catch significant numbers in a short time.⁶⁸ Pliny observed that the *murex* lives in the sea only, and feeds on other shellfish by piercing them with its hard ‘tongue’. To keep the snails alive they are put into a container or artificial pond with sea water until the actual dyeing process begins.⁶⁹ Since they can live up to fifty days on their own ‘saliva’ and reach their full size at one year, as Pliny observes,⁷⁰ it was possible to rear purple snails in artificial fish-ponds, as Columella suggests.⁷¹

4.2 Crushing

Murex snails are edible and are still today sold for consumption at local mediterranean fish markets. Archaeologists therefore need to establish whether the shells found at excavation sites were used for dyeing or for consumption. Snails for consumption are boiled or steamed whole, and therefore the shells remain intact, whereas snails used for purple-dyeing are usually broken up with an iron tool,⁷² or a hole is picked through the shell in order to extract the purple-giving hypobranchial gland. Archaeological finds of *murex* snails often have a hole in their shells of a consistent size of approximately five millimeters in diameter, which shows

orientem et occidentem, invenitur violaceo colore. quod vero meridianis regionibus excipitur, rubra procreatur potestate, et ideo hoc Rodo etiam insula creatur ceterisque eiusmodi regionibus qui proximae sunt solis cursui. Marcus Vitruvius Pollio. *De Architectura* VII, 13

⁶⁴ Aelian IX,6.

⁶⁵ Ziderman 1990:99

⁶⁶ Boesken Kanold 2013:10.

⁶⁷ *Capiuntur autem purpuraeparvulis rarique textu veluti nassis in alto iactis.* Gaius Plinius Secundus. *Naturalis Historia* 9.61.132

⁶⁸ Ruscillo 2005:102

⁶⁹ Ruscillo 2005:102

⁷⁰ *Lingua purpurae longitudine digitali, qua pascitur perforando reliqua conchylia: tanta duritia aculeo est. aquae dulcedine necantur et sicubi flumen inmergitur; alioqui captae et diebus quinquagenis vivunt saliva sua. conchae omnes celerrime crescunt, praecipue purpurae: anno magnitudinem implent.* Gaius Plinius Secundus. *Naturalis Historia* 9.60.128.

⁷¹ *Limosa regio planum educat piscem, velut soleam, rhombum, passerem, eadem quoque maxime idonea est conchylia, murici<bu>s et ostreis, purpurarumque tunc concharum pectunculi<s>, balani<s> vel sphondyli<s>.* L. Iunius Moderatus Columella. *De Re Rustica* VIII,16,7.

⁷² *Ea conchylia cum sunt lecta, ferramentis circa scinduntur, e quibus plagis purpurea sanies uti lacrima profluens excussa in mortariis terendo comparatur, et quod ex concharum marinarum testis eximitur, ideo ostrum est vocitatum.* Marcus Vitruvius Pollio *De architectura* VII,13.

that it was made mechanically with an awl.⁷³ Small specimens were crushed entirely, and the body, hypobranchial gland, shell and all put into the dyeing pot.⁷⁴

4.3 Dyeing

Murex purple-dye is produced from the hypobranchial glands of predatory sea snails belonging to the Muricidae. Of the Muricidae family the varieties *Bolinus brandaris* (formerly known as *Murex brandaris*), *Hexaplex trunculus* (formerly known as *Murex trunculus*), and *Stramonita haemastoma* (formerly known as *Purpura haemastoma*) are abundant along the Mediterranean coasts. Snails of the Thaisidae family are used to a lesser degree. The hypobranchial gland produces a mucuous secretion that contains the chemical precursors of the purple dye, which in a complex photochemical reaction interact with air and light to turn first green and then display a variety of purple hues, from light dusty pink, purple red or scarlet to deep blue violet.⁷⁵ The most highly prized colour, though, was a purple of a blackish hue, described by Pliny as resembling clotted blood.⁷⁶ Purple dyes are incredibly colour-fast, which is one of their greatest advantages, and they come in great variety of shades, depending on the molluscan species used, the chemistry of the vat, and the preparation and the fiber to be dyed,⁷⁷ a fact that Plato also knew well: “You are aware that dyers when they wish to dye wool so as to hold the purple hue begin by selecting from the many colors there be the one nature of the white and then give it a careful preparatory treatment so that it will take the hue in the best way, and after the treatment, then and then only, dip it in the dye.”⁷⁸

Archaeological excavations of ancient purple-dyeing sites have revealed complex installations with vats, tanks, channels, funnels etc., but how exactly the dyeing process was done, we don't know. Modern archaeologists like Deborah Ruscillo and Fabienne Meiers⁷⁹ as well as artists like Inge Boesken Kanold have successfully dyed purple with *murex*, but the small scale of their experiments cannot be compared to the large-scale professional purple industry of old. Even Pliny's detailed account of the process, as convincing as it may sound to the reader, is partly inaccurate, and scientists have not been able to produce any colour following his descriptions.⁸⁰ A look at the archaeological evidence and historic accounts

⁷³ Ruscillo 2005:103

⁷⁴ Ruscillo 2005:103

⁷⁵ Singer 2008:25

⁷⁶ *laus ei summa in colore sanguinis concreti, nigricans aspectu*. Gaius Plinius Secundus. *Naturalis Historia* 9.62.135

⁷⁷ Edens 1999:83

⁷⁸ Plato *The Republic* 4.429d

⁷⁹ Meiers 2013

⁸⁰ Ruscillo 2005:105

combined with modern experiments seems the most promising way to reconstruct the dyeing process.

Excavated archaeological sites that have been interpreted as possible purple dye-works usually feature installations like the one at the Rachi hill, Greece, near the sanctuary of Isthmia.⁸¹ The site dates to 360-240 BC, and its good state of preservation allows some understanding of the dyeing process. Numerous cisterns all over the area point to a great need for water. There were four similar establishments which each consisted of a cemented shallow tank, sloping slightly towards two vats that were positioned side by side at one end of the tank. The tank was connected to one of the vats through a small channel. Near the tanks were other smaller containers. Tanks, containers and vats were all cut out of the rock. Staircases hewn into the rock down to the sea gave good access to the area.

The enormous amount of loom-weights that were also found indicates that both weaving and dyeing were practised at the Rachi. Dye stuffs like kermes, madder, seaweed, woad, saffron, black oak-apple are mentioned in ancient literature and may, as well as *murex*, also have been used on the Rachi hill.⁸² There are three other purple factories close to the Rachi: Attica, Salamis, and Laconia, which Pliny praises as the places where the best purple dye of Europe was produced.⁸³ Hermione and Corinth were also known for exquisite purple dye and garments, and it is possible that the Corinthian garments were in fact produced on the Rachi.⁸⁴ Interestingly a beehive was also found on the Rachi hill, a fact that Plutarch also knew to be an important ingredient to keep the purple dye brilliant and lustrous. Plutarch says:

On making himself master of Susa, Alexander came into possession of forty thousand talents of coined money in the palace, and of untold furniture and wealth besides. Among this they say was found five thousand talents' weight of purple from Hermione, which, although it had been stored there for a hundred and ninety years, still kept its colours fresh and lively. The reason for this, they say, is that honey was used in the purple dyes, and white olive oil in the white dyes; for these substances, after the like space of time, are seen to have a brilliancy that is pure and lustrous.⁸⁵

Pliny's *Historia Naturalis* gives us the most comprehensive description of the fabrication of purple dye, and shall therefore be cited in detail:

The most favourable season for taking these fish is after the rising of the Dog-star, or else before spring; for when they have once discharged their waxy secretion, their juices have no

⁸¹ Kardara 1991

⁸² Kardara 1991:263

⁸³ Gaius Plinius Secundus. *Naturalis Historia* 9.60.127

⁸⁴ Kardara 1961:264

⁸⁵ Plutarch *The Parallel Lives. The Life of Alexander* 36

consistency: this, however, is a fact unknown in the dyers' workshops, although it is a point of primary importance (9.62) ... It is a great point to take the fish alive; for when it dies, it spits out this juice. From the larger ones it is extracted after taking off the shell; but the small fish are crushed alive, together with the shells, upon which they eject this secretion (9.60) ... After it is taken, the vein is extracted, which we have previously spoken of, to which it is requisite to add salt, a sextarius about to every hundred pounds of juice. It is sufficient to leave them to steep for a period of three days, and no more, for the fresher they are, the greater virtue there is in the liquor. It is then set to boil in vessels of tin, and every hundred amphoræ ought to be boiled down to five hundred pounds of dye, by the application of a moderate heat; for which purpose the vessel is placed at the end of a long funnel, which communicates with the furnace; while thus boiling, the liquor is skimmed from time to time, and with it the flesh, which necessarily adheres to the veins. About the tenth day, generally, the whole contents of the cauldron are in a liquified state, upon which a fleece, from which the grease has been cleansed, is plunged into it by way of making trial; but until such time as the colour is found to satisfy the wishes of those preparing it, the liquor is still kept on the boil. The tint that inclines to red is looked upon as inferior to that which is of a blackish hue. The wool is left to lie in soak for five hours, and then, after carding it, it is thrown in again, until it has fully imbibed the colour. (9.62)

Unfortunately, as scholars have pointed out, these instructions do not give satisfactory dyeing results. Boiling for instance ruins the purple dye,⁸⁶ a mere simmering at about 50°C is sufficient.⁸⁷ Also the use of the metal vessels is disputed.⁸⁸ Pliny says that one sextarius (= 0,5 liter) of salt should be added to every hundred pounds of juice, and set to boil in a heating vessel of *plumbum* (*fervere in plumbo*).⁸⁹ The word *plumbum* can mean 'tin' or 'lead', depending on whether the adjective *album* or *nigrum* is added, which unfortunately Pliny does not tell us, but evidently it makes a great difference for the dyeing process.⁹⁰

Purple-dyeing is not a living art anymore handed down by tradition, but its fascination is unbroken and has aroused the interest of academics and others who have made considerable efforts to resurrect the lost art of *ars purpuraria*.⁹¹ We must bear in mind, though, that even if small-scale experiments have given good results, we still know very little about how exactly a big industrial purple-dyeing site was organized in terms of infrastructure, trade organization, specialization, labour division, etc.

4.4 How were different purple hues achieved?

Deborah Ruscillo and Fabienne Meiers have made controlled experiments on how to achieve different purple hues. Ruscillo experimented with *Murex trunculus*, while Meiers used *Bolinus brandaris*. Ruscillo dyed six different batches, and in each batch raw wool, raw silk,

⁸⁶ Ruscillo 2005:105

⁸⁷ Koren 2005:141

⁸⁸ Koren 2005:142

⁸⁹ Pliny *NH* 9.62.133

⁹⁰ McGovern; Michel 1990:155

⁹¹ Meiers 2013

processed silk, and cotton were used. 1. followed Pliny's instructions, sea water used, 2. sweet water used, 3. sea water and urine used, 4. sea water and alum mordant used, 5. sea water and vinegar used, 6. sea water only. The results showed that Pliny's instructions to steep the sea water and the dye mixture for three days, then heat it, and steep for another nine days, only "produced an unimpressive and superficial grey/purple colour in all fabrics."⁹² For batches 1-5 the mixture was steeped for three days, then heated to 80°C, and the liquid sieved. The fabric swatches were put into the hot dye baths, allowed to cool for several hours, and dried without previous rinsing. Batch 6 was neither heated nor steeped. The results 1-5 showed that processed silk gave the most beautiful "vibrant and attractive colours, ranging from a light dusty pink to a deep violet",⁹³ while wool produced the most coveted purple colour of antiquity, a purple that looks like "clotted blood" with a blackish hue, but of a shining appearance when held up to the light.⁹⁴ Other materials gave only dull colours. The swatches in batch no. 6, the ones that were immersed without heating directly into the unsteeped mixture of *murex* glands and sea water, resulted in the blue colour named *hyacinth*, which in the Hebrew Bible is the sacred colour *tekhelet*.⁹⁵

Fabienne Meiers has experimented with Red Tarentine purple dye. In her work *Ars purpuraria* she presents the results of her experiments with different vats and examines the influence of oxygen, UV-radiation, harvest time, sex and freshness of the purple molluscs on the colour outcomes.⁹⁶ Meiers tested both historical biochemical agents (lye, urine, yeast) and a modern chemical, sodiumdithionit. Of these agents only urine and yeast are historically attested for. The yeast vat was unsuccessful, but the urine vat yielded a beautiful red colour. Referring to Pliny, she set up a dyeing vat with a mixture of urine and water in equal quantities to dilute the juice of *Bolinus brandaris* in a ratio of 2:1 (urine/water:juice),⁹⁷ and added some honey. The result was a "brilliant salmon red".⁹⁸ It is interesting to note that both urine and honey were probably also used at the dyeing installation on mount Rachi mentioned above, where a beehive and a vessel with silica deposit from urine were found.⁹⁹ Whether the

⁹² Ruscillo 2005:104

⁹³ Ruscillo 2005:104

⁹⁴ *laus ei summa in colore sanguinis concreti, nigricans aspectu idemque suspectu refulgens.* Gaius Plinius Secundus. *Naturalis Historia* 9.62.135

⁹⁵ Stieglitz 1994:48; Ziderman 2002

⁹⁶ Meiers 2013:2

⁹⁷ *ius temperatur aqua et pro indiviso humani potus excrement. dimidia et medicamina adduntur.* Gaius Plinius Secundus. *NH* 9,64,138

⁹⁸ Meiers 2013:5

⁹⁹ Kardara 1961:266

urine was used as a detergent to wash the wool with or as a dyeing agent, and what the honey was used for, is difficult to say, but we cannot exclude their use for purple-dyeing.

It has become clear at this point that the colour purple as the modern speaker perceives it was in fact a whole range of colours on the red and blue spectrum in a variety of intensity and hues. Meiers' experiments showed that *Bolinus brandaris* yields mostly red hues, from pale and dusty pink to deep reddish brown on woolen dye samples, whereas silk takes on a more bluish hue. *Hexaplex trunculus* gives both red and blue colours, ranging from salmon red, lavenderblue, violet, turquoise blue and petrol blue to midnight blue.¹⁰⁰ The large colour palette of purple is also reflected by classical writers. Pliny uses the terms *ruber*, *nigrans*, *violacea purpura*, *pallor* and others,¹⁰¹ while Vitruvius distinguishes *ater*, *lividus*, *violaceus* and *ruber* in function of the purple shells' origin.¹⁰² If we add to this combination colours like *amethyst*, a mixture of *bucinum* and *pelagium* about 2:1, and Tyrian or *dibapha*, a double-dye first in *pelagium* and then in *bucinum*, it is obvious that 'purple' is but a nominal term for a large varteity of blue and red shades.

There is one thing that the production of all these colours has in common - the offensive smell. Strabo says that the Phoenician city of Tyre owed its wealth to its purple industry, but was unpleasant to live in, presumably because of the smell;¹⁰³ and Pliny wondered how something smelling so bad (*virus grave in fuco*) could be valued so highly.¹⁰⁴ One might speculate that garments probably had to be aired for a long time and doused in perfume before they could be worn.¹⁰⁵

5. Dress and dress code in Rome

Garments are not only protection from the elements, but also signal to others who we are and how we want to be seen. The dress code of any given group is a way of nonverbal information to the observer about social identity, occupation, sex, religion, economic situation etc. But for the Roman citizen outer appearance was also a symbol of his inner virtues and character.¹⁰⁶ The toga is considered the most characteristic garment of the Romans. It not only symbolized the social identity of the individual, but also that of Roman identity in general, as expressed

¹⁰⁰ Meiers 2013:6

¹⁰¹ Gaius Plinius Secundus. *Naturalis Historia* 9.62.134 and 9.63.137

¹⁰² Marcus Vitruvius Pollio. *De Architectura* VII, 13

¹⁰³ Strabo. *Geography* XVI,2 Translation taken from The Geography of Strabo published in Vol. VII of the Loeb Classical Library edition, 1932

¹⁰⁴ Gaius Plinius Secundus. *Naturalis Historia* 9.60.127

¹⁰⁵ Ruscillo 2005:105

¹⁰⁶ Rothfus 2013:446

by the description of the Romans as the *gens togata*.¹⁰⁷ Only free Roman citizens were allowed to wear the toga, it was not worn by soldiers, foreigners or slaves. Thus the toga signalled that the wearer was a man of rank and status, peaceful, and a free Roman citizen. Any Roman of better standing would wear a toga over his *tunica* when out on the street, thus defining himself superior to a *tunicatus*, a poor man who did not own a toga, or to foreigners like the inhabitants of *Gallia bracata* who wore trousers.¹⁰⁸

Nevertheless the toga was a very impractical garment and many Romans took it off as soon as they got home to put on the *pallium*, a comfortable cloak made from a rectangular cloth.¹⁰⁹ The great amount of fabric and the untailed fit of the toga required a stiff posture when standing, measured steps when walking, and physical work was virtually impossible. Its light colour required care and it was costly to keep it clean, but exactly these factors conveyed the message that the wearer had economic, social and political power.¹¹⁰ The toga mattered especially in places and occasions when it was important to show one's Roman identity, for instance when a boy donned his adult toga for the first time, at the theatre, the forum or at the senate.¹¹¹ Thus the toga represented a true Roman citizen, loyal to the gods and the state, well educated and peaceful. On the other hand, by *not* wearing the toga one forfeited the protection the toga ensured.

... there was in Roman culture a strong current of belief that the way one looked was a reliable guide to who one was, that is, his beliefs, attitudes, and positions in the social nexus. ... Leaving off appropriate garments was a symbolic action and was seen as such by the jurists, who judged it not a matter of individual dress preference but an abandonment of the values those garments represented and the social role for which those values were essential.¹¹²

In order to get an idea of Roman clothing in relation to the colour purple, both as adornment and the object of sumptuary laws, the significance of purple-dye for Roman garments shall be described next.

5.1 The tunic

Under his toga the Roman citizen wore a *tunica*, a simple rectangular garment woven of white wool. It had short sleeves, reached down to the knees or to the feet and was held together with

¹⁰⁷ Suetonius. *Divus Augustus* 40,5 Augustus once said with indignation ...*en Romanos, rerum dominos, gentemque togatam!*, when he saw a group of men dressed in dirty cloaks.

¹⁰⁸ Cf. M. Tullius Cicero. *Epistulae ad Familiares* 9.15

¹⁰⁹ Goette 2013:42

¹¹⁰ Rothfus 2010:436

¹¹¹ Rothfus 2010:432,446

¹¹² Rothfus 2010:428-29

a belt. In the middle and late Roman Empire tunics could also have long sleeves. Roman citizens would wear a toga over their tunic, whereas men of lower status, manual workers or slaves wore just a tunic together with a cloak (*pallium*). In cold weather one might wear several tunics. To distinguish members of the equestrian order their tunics had narrow purple stripes (*clavi angusti*) woven into the fabric at the front and the back, while broad stripes (*clavi lati*) were reserved for the senators.¹¹³

5.2 The toga

Compared to modern clothing with a multitude of textiles, colours, cuts and accessories, the Roman toga was a very simple garment that changed little over the centuries. It was an almost untailored piece of fabric draped loosely around the body. The origin of the Roman toga is not quite clear. Its forerunners might be the Etruscan *tebenna*, a semicircular garment like the one found in an Etruscan grave at Verucchio dating to the 7. century BC (red with a brickwoven purple band around the edges),¹¹⁴ and/or the Greek *chlaina*, a circular cloak.¹¹⁵

The cut of the toga was simple. It had one semicircular and one straight edge and was draped around the body in one layer. The two ends of the straight edge are called *lacinae*.¹¹⁶ Because of its small size it was also called *toga exigua*,¹¹⁷ and was in use until the end of the Republic, when the Emperor Augustus promoted a much larger version. This Augustean toga had a much larger halfcircle and another one even bigger added to it. Thus a smaller and a larger segment were attached to each other, forming almost a circle (whether they were woven like this in one piece or cut from a rectangular piece is uncertain).¹¹⁸ The straight line between the two *lacinae* now measured about three times the height of the wearer or nearly 5 m, and more than 2 m in radius.¹¹⁹ The fabric would now lie in a double layer, making it heavy and extremely difficult to wear and stay in place. Up to four assistants were needed to drape these masses of fabric around the wearer with the aid of pins, lead weights and small boards (*tabulae*). Because of the *tabulae* the Augustean toga was also called *toga contabulata*.¹²⁰

The application of purple decoration allowed for further distinction of the wearer. On the *exigua* type of toga the purple decoration would be at the round edge, in the large toga of

¹¹³ Goette 2013:40

¹¹⁴ Stauffer, Raeder Knudsen 2013:69

¹¹⁵ Goette 2013:41

¹¹⁶ Goette 2013:42

¹¹⁷ Goette 2013:42. See also Quintus Horatius Flaccus. *Epistulae* 1.19.13: *Siquis uoltu toruo ferus et pede nudo exiguaeque togae simulet textore Catonem.*

¹¹⁸ Goette 2013:41

¹¹⁹ Goette 2013:43

¹²⁰ Goette 2013:43. For an detailed description of how to drape a toga see Ross 1911.

imperial times it would be applied to the round edge of the smaller segment, called the *sinus*. Children of free Roman citizens before puberty, as well as magistrates, wore the *toga praetexta*, a small toga with a purple stripe on the edge. When a male child entered puberty, he donned the *toga virilis*, also called *toga alba* or *toga pura*, a simple white toga made of wool.

The colour purple had a double function: it represented the social status of the wearer and also protected him from physical and verbal assault. For instance the Vestal virgins, who were responsible for the well-being and continuation of Rome, wore a headdress with purple stripes which signalled that their person was sacrosanct and any transgression was considered a crime.¹²¹ The use of the purple is most spectacular in the *toga picta*, made entirely of purple-dyed, gold-embroidered fabric. It was worn by victorious generals at their return from great military successes in the so called *triumphus*, a triumphant parade through the streets of Rome. Drawn in a chariot by four horses among the carts with the spoils of war, the captives, trumpeters and toga-clad soldiers,¹²² the general sitting in his chair, dressed in a splendid display of purple consisting of a solid purple *toga picta*, a *toga praetexta*, the embroidered *tunica palmata*, along with the triumphal crown and the laurel wreath on his head¹²³ certainly must have looked god-like and invulnerable to the spectators.

5.3 The trabea

The *trabea* was a variant of the toga, more like a cloak, and worn by the king, the priests and members of the equestrian order (*equites*) in early Rome. Like the *toga praetexta* it was decorated with purple stripes (*trabes*),¹²⁴ which makes it likely that it was a pre-runner of the later *toga praetexta*¹²⁵ and probably a direct descendant of the Etruscan *tebenna*. Pliny thought that the purple *trabea* was indeed a very old garment because Romulus had used it.¹²⁶

Servius (4./5. century AD) cites Suetonius, from a lost book on the variety of clothing, as mentioning three kinds of *trabea*: one made wholly out of purple for the gods, one of

¹²¹ Goette 2013:48

¹²² Goette 2013:49

¹²³ *eos viros, quos vos sellis curulibus, toga praetexta, tunica palmata et toga picta et corona triumphali laureaue honoraritis.* Livius. *Ab urbe condita* X,7

¹²⁴ Helbig 1904:172

¹²⁵ Helbig 1904:174

¹²⁶ *Purpurae usum Romae semper fuisse video, sed Romulo in trabea.* Gaius Plinius Secundus. *Naturalis Historia* 9.63.136

purple with some white for the kings, and one for the augurs which was purple and kermes-dyed.¹²⁷

6. Purple - symbol of status and luxury in Rome

Since, as we have seen, clothing signalled that an individual belonged to a social and political class, the use of purple as a visual marker of social status was strictly regulated, at least nominally. Rome's foreign conquests and control over high-price import goods like purple from the eastern Mediterranean, silk from China, and pepper from India, increased the demand for these goods, even in remote provinces like Britain and Gaul.¹²⁸ The demand for purple and the price which people were ready to pay seems to have increased around the beginning of the Roman Empire. When Cornelius Nepos was young (110-25 BC), Pliny remembers,¹²⁹ violet purple dye at 100 denarii the pound was in fashion, followed by red Tarentine purple, but in the latter half of the first century, when Pliny was writing Tyrian *dibapha*, which was the latest craze, cost more than 1000 denarii per pound. When Publius Lentulus Spinther first wore a *toga praetexta* with stripes of Tyrian *dibapha*, he was met with disapproval, but at this later point in time, Pliny says, people even cover their dining-couches with Tyrian purple!

The craze for purple did not end with stripes or covers, as we can see at the home of the nouveau riche freedman Trimalchio, the protagonist of Petronius' *Satyricon*.¹³⁰ Written around A.D. 60, or close to the time when Pliny was writing his *Natural history*, Trimalchio's banquet is the background for some of the typical pretensions of social climbers. There are many examples of bad taste in Trimalchio's home, one of them the exaggerated use of purple. When he is carried into the dining room he wears a scarlet coat and a napkin around his neck with the purple *lati clavi* that should be reserved for senators. Cushions are stuffed with purple-dyed wool and a servant is beaten because he bandages his master's hurt arm with white wool instead of purple. Truly a "mad lust for purple" (*insania*)¹³¹, as Pliny called it, but one that was to be excused for several reasons. Consuls and praetors dressed in the *toga praetexta* were preceded by lictors who carried fasces and axes to make way in the crowd; the colour purple on the *toga praetexta* of free-born boys before puberty underlined the majesty

¹²⁷ Suetonius in libro de genere vestium dicit tria genera esse trabearum: unum dis sacratum, quod est tantum de purpura; aliud regum, quod est purpureum, habet tamen album aliquid; tertium augurale de purpura et cocco. Maurus Servius Honoratus. In Vergilii carmina comentarii 7.612

¹²⁸ Wild 2013:63

¹²⁹ Gaius Plinius Secundus. *Naturalis Historia* 9.63.137

¹³⁰ Petronius Arbiter. 2004. *Cena Trimalchionis*.

¹³¹ Gaius Plinius Secundus. *Naturalis Historia* 9.60.127

of childhood (*maiestas pueritiae*), which can be interpreted as a special protection in this vulnerable age; it distinguished the senator who wore a broad purple stripe from a man of equestrian rank with a narrow purple on his toga; purple was worn by priests while making their prayers; and the colour gave a special quality to every garment. Pliny in this passage sums up the important signs and information conveyed by the colour purple, though he seems mildly indignant by the smell and the greenish hue of purple in its early stages, reminding him of the stormy sea.¹³²

Certainly part of the attraction of the colour purple was its costly production and the fact that it reflected a high status, whether earned by birth or career, or whether by the conspicuous consumption of semi-educated upstarts like Trimalchio. But in the colour symbolism of Antiquity the colour purple had a deeper meaning. Purple is generally classed with red which traditionally represented light, life, the sun and the divine.¹³³ In ancient Greece it was used for weddings and funerals and in Greece and Rome the military used it to frighten the enemy. As shown above, already in Bronze Age Mediterranean graves and palaces, Minoan art work and Greek mythology, the colour purple clearly belonged to the sphere of the divine, of something higher than the ordinary existence of man, but nevertheless its use was free to anyone who could afford it and for about two thousand years there was no legal framework which restricted the use of purple to kings or emperors.¹³⁴ It was not until the end of the Roman Republic that the increasing imports of luxury goods like silk and gold fabrics ultimately lead to the strict legal sanctions or codification which will be discussed now.

7. Sumptuary laws concerning purple

The attitude of the Romans towards luxury was ambivalent. Officially they adhered, as Cicero said in his speech for the defence of his client Murena, to traditional republican moral ideas that condemned private luxury, but praised public generosity.¹³⁵ The historian Livy fulminated when Roman soldiers brought back from Asia couches of bronze, precious tapestries, luxurious furniture and gold, things that had not been seen before in Rome, and considered such luxury the cause of licentiousness, disgrace and moral decline.¹³⁶ Silk, purple and gold threads were considered the epitome of luxury textiles.¹³⁷ Expensive grave goods, wearing and giving as gifts precious textiles and extravagant interior decoration (of which

¹³² Gaius Plinius Secundus. *Naturalis Historia* 9.60.127

¹³³ Gage 1993:26

¹³⁴ Singer 2008:31

¹³⁵ *odit populus Romanus privatam luxuriam, publicam magnificentiam diligit. Cicero. Pro Murena* 76

¹³⁶ Livius. *Ab urbe condita* 39.6

¹³⁷ Wild 2013:63

Trimalchio's house in Petronius' novel provides a good example) demonstrate that many Romans were all too ready to give in to these temptations. Especially silk was targeted as a sure way to moral decline as Seneca lamented when he saw women wearing transparent silk dresses that left nothing to the imagination.¹³⁸

In order to put a check on such supposedly corrupting extravagances, the Roman government launched sumptuary laws (*sumptuariae leges*) which point out the Romans' fascination with oriental luxury and the authorities' attempts to counteract it. These laws were established in an effort to restrain the extravagant expenditures of Roman citizens because such behaviour was thought to cause moral corruption and to undermine the army's effectiveness. Censors tried to keep up the *cura morum* by punishing those who displayed prohibited luxury. But as we shall see, the countless number of sumptuary laws were to no avail – in effect, by restricting the colour purple to a select few it became all the more attractive, the prohibition simply generating a desire to possess it. There is a fundamental contradiction in sumptuary laws: an item or a colour that is associated with social superiority will become the object of desire for those below, and when status can be claimed just by wearing the right colour, those who have the means will want to do so. In this way, clothing styles trickled down to persons of lower rank, forcing the elite to create new fashions or impose drastic sanctions in order to preserve the visual hierarchy. Sumptuary laws concerning the wearing of purple in the Roman Empire, tying it to the Emperor only, eventually ended with the confiscation of property or even the killing of the transgressors. This evolution spanned several centuries and shall now be exemplified through a few instances.

The oldest *sumptuariae lex*, the Lex Oppia from 213 BC, was only short lived. After just twenty years the law, which banned women to possess more than half an ounce of gold and to wear purple and gold clothing, was repealed after the womens' vehement demand: "We want to shine in gold and purple!" (*ut auro et purpura fulgamus*).¹³⁹ For centuries the Romans had a rather relaxed approach to who might wear purple. The emperor Augustus (63 BC – 14 AD) was a man of moderate habits and allowed the senators' sons to wear the broad purple stripe immediately after receiving the *toga virilis*, while he himself preferred to wear togas that were neither close nor full with his purple stripe, neither narrow nor broad.¹⁴⁰ Apparently there was no specific legislation about purple, but things changed considerably under Nero (37 – 68 AD). He displayed wantonness, lust, extravagance, avarice and cruelty to a degree

¹³⁸ Seneca the Elder. *Declamations* 2.7 exc.

¹³⁹ Lex Valeria Fundania de lege Oppia abroganda 3

¹⁴⁰ Suetonius. *De Vita Caesarum. Divus Augustus* 38.2 and 73

that was considered a defect of character (*naturae illa vitia*).¹⁴¹ Spending money was in his opinion the best way to enjoy riches, and the characteristic of truly magnificent men, while stingy men kept an account of their expenditures.¹⁴² It was said that Nero never wore the same garment twice and he is said to have fished with a golden net drawn by cords woven of purple and scarlet threads.¹⁴³ He forbade the trade and possession of amethystine or Tyrian purple dyes, closed all the shops of purple dealers, and confiscated the property of a woman dressed in the forbidden colour while attending one of his infamous recitals.¹⁴⁴ Thus he set the pace for later regulations, for instance the Edict on Maximum Prices promulgated in 301 by Diocletian (244 – 311 AD).

The reasons for issuing the edict were the extremely difficult times the Roman Empire was going through in the third century. Anarchy, bankruptcy, intolerable tax burdens, inflation and the degradation of the peasantry to serfdom were the consequences of Rome's ambition to rule the world, a task which proved too great and too expensive.¹⁴⁵ In an effort to reform the monetary system Diocletian set the maximum prices “for over 900 commodities, 130 different grades of labour, and a considerable number of freight rates, and severe punishment promised to all ‘black market’ operators who dared to buy or sell above the maximum.”¹⁴⁶ Diocletian prized purple very highly, so highly in fact that no one but him and a select few had the means to afford it. He set the price for one pound of Tyrian purple wool at 50.000 denarii,¹⁴⁷ one pound of *purpurae hypoblattae* at 32.000 denarii,¹⁴⁸ *purpurae oxytyriae* (the exact nature of this ‘bright Tyrian purple’ is not known)¹⁴⁹ at 16.000 denarii per pound, Milesian true purple wool, twice dyed, best quality, at 12.000 denarii per pound, and Nicaean purple wool, scarlet-dyed, at 1.500 denarii per pound.¹⁵⁰ Undyed wool of the best quality fetched only 175 denarii a pound, whereas one pound of purple-dyed silk was the most expensive item at 150.000 denarii per pound.¹⁵¹ Tyrian purple was thus worth its weight in gold, which was 50.000 denarii the pound, three times.¹⁵² The immense profit margin from raw wool to spun yarn and woven purple garments prompted Diocletian to claim a state monopoly for the whole purple

¹⁴¹ Suetonius. *De Vita Caesarum. Nero* 26.1

¹⁴² Suetonius. *De Vita Caesarum. Nero* 30,1

¹⁴³ Suetonius. *De Vita Caesarum. Nero* 30,3

¹⁴⁴ Suetonius. *De Vita Caesarum. Nero* 32,3

¹⁴⁵ Michell 1947:3

¹⁴⁶ Michell 1947:1

¹⁴⁷ Steigerwald 1986:23, footnote 137

¹⁴⁸ Erim, Kenan T., Reynolds, J., Wild, J.P., Ballance, M.H. 1970:126

¹⁴⁹ Erim, Kenan T., Reynolds, J., Wild, J.P., Ballance, M.H. 1970:132

¹⁵⁰ Erim, Kenan T., Reynolds, J., Wild, J.P., Ballance, M.H. 1970:126

¹⁵¹ Only the Greek version is preserved. See Lauffer, *Diokletians Preisedikt* p. 167

¹⁵² Erim, Kenan T., Reynolds, J., Wild, J.P., Ballance, M.H. 1970:121

industry, threatening everyone who wore purple or even an imitation of it with the death penalty for high treason.¹⁵³

The *Codex Justinianus*, promulgated in 529 by the Byzantine emperor Justinian, continued to threaten those who used or trafficked in purple “although it was already prohibited by innumerable constitutions”¹⁵⁴ with confiscation, severe punishment or death. Anyone who dared to fit out a ship to collect murex sea shells was fined two pounds of gold,¹⁵⁵ which in most cases equalled bankruptcy. Even the dyeing of wool with colours resembling the Imperial purple could spell death.¹⁵⁶ Everything dyed with Imperial purple was “expressly reserved for the Emperor and his family” and was to be delivered to the Treasury, perpetrators being guilty of high treason.¹⁵⁷

The list of laws concerning purple is far from exhausted and will not be continued here, but in order to give an idea of their impact on people’s daily lives, the tragic end of a banquet will be presented, where the use of purple cloth for interior decoration had disastrous consequences for the owner, as opposed to the banquet of Trimalchio whose presentation of purple was even more exaggerated, but without fatal consequences.

7.1 Two historic instances of how laws concerning purple affected people’s lives

In a few laconic lines the Roman writer Ammianus Marcellinus (325 – 391) relates the story of a wealthy man in Aquitaine who in winter 356/7 held a sumptuous and elegant banquet.¹⁵⁸ The couches and tables were covered with cloths that were cleverly arranged in such a way that their purple stripes touched each other and gave the impression of a solid purple cloth. One of the guests, a crafty old fellow (*veterator quidam*), draped them around himself in a manner to make them look like the *amictus principalis*, the emperor’s garment. One can easily imagine a guest in a good mood after a convivial dinner ‘playing emperor’, but the joke reached the emperor’s ears and was enough “to ruin a rich estate” (*quae res patrimonium dives evertit*). This incident underlines the paranoid fear of the Roman emperors who fabricated false accusations even on the slightest suspicion, as another incident also related by Ammianus underlines.

A royal robe (*indumentum regale*) had secretly been made at Tyre, but it was uncertain who had ordered it or for whom. A letter was found, written in Greek by the deacon

¹⁵³ Gage 1993:25

¹⁵⁴ *The Enactments of Justinian* 8,5

¹⁵⁵ *The Enactments of Justinian* 7,9

¹⁵⁶ *The Enactments of Justinian* 8,3

¹⁵⁷ *The Enactments of Justinian* 8,4

¹⁵⁸ Ammianus Marcellinus. *Rerum Gestarum* 16.8.8

Maras, in which he urged the foreman of a weaving plant in Tyre to speed up the completion of a garment, without specifying what it was. Maras was tortured almost to death but did not confess anything. The very governor of the province, Apollinaris, and his son by the same name, and many others, were charged with conspiracy and other terrible crimes, exiled and killed, but no confessions were obtained. The other evidence was doubtful or unimportant. The only tangible piece was a short sleeveless tunic, just big enough to cover the chest, and for that people were tortured, killed and exiled.¹⁵⁹

8. *Adoratio purpurae* or The Kissing of the Purple

As we have seen, the colour purple had effectively been tied to imperial power in the fourth century under Diocletian, and the purple robe had become a symbol of the absolute sovereignty of the emperor. Whereas in its early beginnings purple had been a trading commodity and a tribute to the gods, it had later during the Roman Republic become a marker of status and social differentiation, until it became a sovereign symbol. It was not so much the economic value that mattered but the equation of the colour with absolute power. One might say that the colour had been “elevated” from the fabric and its owner and become by itself a venerated object, a symbol of royalty and divinity. That would explain why the emperor was so suspicious of *any* purple garment as it would automatically make its wearer a rival to dispute the emperor’s rights. In the following I shall describe the ritual veneration of the emperor’s robe, the “kissing of the purple” or *adoratio purpurae*, as it has been called.

The term *adoratio purpurae* does not occur in ancient literature, but was coined in 1940 by the scholar William T. Avery as a grammatical parallel to the expression *memoriae damnatio*, which also was unknown in antiquity but is widely accepted today.¹⁶⁰ It shall therefore also be used here. The practice of kissing the emperor’s robe is ascribed to Diocletian,¹⁶¹ but the act of *adoratio*, simple obeisance without kissing the purple, was probably much older and stemmed from simpler forms of veneration during the early empire.¹⁶² It only became the highly formalized act when the emperor as head of state had also assumed the position of autocrat and theocrat.¹⁶³ Ammianus Marcellinus writes of a procedure called *adoratio*¹⁶⁴ by which officials rendered homage to Diocletian using the words *adoraturi imperatorem* (“render homage to the emperor”) which have been understood

¹⁵⁹ Ammianus Marcellinus. *Rerum Gestarum*; 14.7.20; 14.9.7-8

¹⁶⁰ Avery 1940:66, footnote 2.

¹⁶¹ Ammianus Marcellinus. *Rerum Gestarum* 15.5.18

¹⁶² Avery 1940:75

¹⁶³ Avery 1940:75

¹⁶⁴ Ammianus Marcellinus. *Rerum Gestarum* 21.6.2

as *adoraturi purpuram imperatoris* (“render homage to the imperial purple”, i.e. by kissing it).¹⁶⁵ Admission to the *adoratio* was a favour granted to a limited number of military and civil functionaries. Military officials approached the emperor in a fixed order, the pretorian prefect first, followed by other *illustres*, the last in row being the subalterns of the troop. Civilians were allowed to the ceremony only if their rank was at least that of *consularis*.¹⁶⁶ Thus the rank of the *adoratores* determined their order when performing the ceremony. Also each time an official was promoted he had to perform the rite in order to show his obeisance. The rite itself was performed in this manner: The person admitted to the emperor genuflected before him, took the hem or the corner of his imperial robe, raised it to his lips and kissed it.¹⁶⁷ Diocletian had carried out a profound reform of court ceremonies in which the most visible symbol of his imperial dignity was his purple robe. Kissing it meant the individual’s submission to the godlike person of the emperor.

9. An outlook to the North: Purple-dyeing in Anglo-Saxon England

The long and successful history of murex purple-dyeing in the Levant ended with the Arab conquest in the seventh century. It has been speculated that the remaining purple-dyers moved into Byzantine territory,¹⁶⁸ where the industry survived until the Turkish conquest of Byzantium in 1453. A decree by Pope Paul II in 1464, that from now on the cardinals’ robes should be dyed with kermes (*kermes vermilio*), an insect dye, points to the end of purple-dyeing, at least on an industrial scale, at that time.¹⁶⁹ As mentioned in the introduction, there are other types of sea snails which give a purple colour of no lesser quality than those in the Mediterranean, for instance *nucella lapillus* or dog whelk, which lives on the Atlantic coast of northwestern Europe, and *plicopurpura pansa* on the Pacific coast of Central America. Dyeing with these species has been practised by coastal peoples in many parts of the world for a very long time as part of their cultural heritage.¹⁷⁰

Our journey through the history of purple-dyeing started in the second millenium BC on Crete, but in the last section of this paper I aim to show that purple-dyeing was known in Anglo-Saxon England, and used in manuscript illustrations; purple-dyed fabrics were possibly imported from the Byzantine region into England. In Ireland, on the tiny island of Inishkea

¹⁶⁵ Avery 1940:67, footnote 15

¹⁶⁶ Avery 1940:68

¹⁶⁷ Avery 1940:67

¹⁶⁸ Koren 2005:138

¹⁶⁹ Biggam 2006:25

¹⁷⁰ For example on the Pacific coasts of Mexico and Central America, cf Naegel 2004.

North, Co. Mayo,¹⁷¹ archaeological excavations have yielded the remains of a small purple-dyeing factory, dated to the late seventh century. Some of its structural features are reminiscent of the big Mediterranean factories like the one on the Rachi hill in Greece described earlier. There was a pit with its floor covered partly by a large flat stone and partly by tight-fitting stones creating the shape of an inverted cone, and a big heap of broken dog whelk shells, mixed with pebbles that were cracked by fire.¹⁷² Furthermore there was a small enclosure which the excavator believes to once have held a skin container or a wooden vat, since the floor was entirely free of archaeological remains.

The structures at Inishkea North allow us to reconstruct the dyeing process in the following manner: the snails were crushed on the large flat stone, then thrown into the cone-shaped vessel. The hypothesized skin container was meant to keep the live snails or to soak them in salt. The gentle heat that was needed to simmer the pulp was obtained by throwing pebbles heated in the fire into the container full of pulp.¹⁷³ The archaeological evidence (there were more purple-dye factories along the Irish coast)¹⁷⁴ thus shows that small-scale purple-dye production existed in Ireland in the seventh century. Purple-dye from dog whelk was also produced in Brittany at La Yaudet, an ancient site near Lannion on the north coast.¹⁷⁵ The fact that both these sites were situated close to monasteries gives us a clue to the possible use of purple-dye, as will be pointed out.

In the *Ecclesiastical History of the English People*, completed in 731 AD, the Venerable Bede praises the natural resources of Britain, among others fish, mussels with pearls, hot springs, metals and “a great abundance of cockles, of which the scarlet dye is made; a most beautiful colour, which never fades with the heat of the sun or the washing of the rain; but the older it is, the more beautiful it becomes.”¹⁷⁶ This reference indicates that whelks were used to dye purple in Britain in the early medieval period and that the colour was not only beautiful but also fast, two qualities highly appreciated by dyers. The proximity of these small purple-dye factories to monasteries suggests that purple pigment was used by the monks to embellish manuscripts, because this utilisation would not need great amounts of snails, and indeed the successful experiments by Boesken Kanold¹⁷⁷ with *murex trunculus* have shown that only a few specimens suffice to dye parchment purple.

¹⁷¹ Henry 1952

¹⁷² Henry 1952:167

¹⁷³ Henry 1952:176

¹⁷⁴ Henry 1952:177, footnote 34

¹⁷⁵ Biggam 2006:34

¹⁷⁶ Bede. *Ecclesiastical History of the English People* 1.1

¹⁷⁷ Boesken Kanold 2005:152

True purple has been identified in an Anglo-Saxon manuscript of the period, the Barberini Gospels, where it was used in the background at the opening of the gospel of St John (125r).¹⁷⁸ The purple pigments used in the Royal Bible at the British Library in London may or may not be made of dog whelk, but they are “likely to be an organic extract, either plant (folium) or animal (Tyrian purple)”.¹⁷⁹ One manuscript is certainly not much, but future scientific research might reveal that the Barberini Gospels are only the first of other indications of whelk exploitation in Anglo-Saxon England.¹⁸⁰

The scarcity of purple-dyed textile finds does not prove their non-existence. There is a passage in the treatise *De virginitate* written by bishop Aldhelm (639-709) for the abbess and nuns of Barking Abbey in Essex referring to the luxurious clothing he had witnessed in some monasteries. On his visits he saw fine linen shirts, scarlet (*coccinea*) and blue (*iacintina*) tunics, silk embroideries, red leather shoes and coloured head-dresses; and thus he admonished nuns and monks not to embellish their bodies, but their inner selves.¹⁸¹ Elsewhere in *De virginitate* he writes: “Therefore, the forbidden finery of a world which is to be destroyed, coloured with precious dyes of purple tincture, cannot be duly and appropriately suited to disciples of the convent to handmaidens of Christ, to virgins of the Church.”¹⁸² The nuns, he writes, wear high-quality purple clothes with silk-embroidered sleeves and shoes trimmed with red leather, and their fingernails are, ‘sharpened after the manner of falcons or hawks’, which indicates that they do not do manual work. Aldhelm’s description of the nuns’ aristocratic attire and his remark that their clothes were made “with precious dyes of purple tincture”¹⁸³ suggests the Mediterranean origin of the dye, since Aldhelm describes the luxurious clothing of the highest ranks of Anglo-Saxon society. One cannot exclude the fact that purple-dyed fabrics or clothing were imported into England from the Byzantine region and that these religious world-lovers, who were often aristocrats and even royalty, had not left their rich clothing behind, when they took their vows. It is open to question though whether these purple clothes were really made of the highest purple grade, Tyrian purple, or of some inferior grade.¹⁸⁴

It is, however, demonstrable that purple dye of high quality from dog whelks was produced in small-scale factories in early medieval Britain, Ireland and Brittany, and that it

¹⁷⁸ Biggam 2006:37

¹⁷⁹ Biggam 2006:38

¹⁸⁰ Biggam 2006:55

¹⁸¹ Aldhelm: *The Prose Works* p. 127-128

¹⁸² Aldhelm: *The Prose Works* p. 124

¹⁸³ *purpureae pretiosis tincturae muricibus*. Aldhelmus. *De Virginitate* p. 314

¹⁸⁴ Biggam 2006:52

was used to illustrate manuscripts. Furthermore there is some evidence that the aristocracy had the means to import purple fabric all the way from the Byzantine area into England.

Conclusion

This paper aimed to explore the long and fascinating story of purple-dyeing, by relying to a great extent on Latin sources. From the earliest finds of purple-dyed textiles in a Syrian tomb, the settlement at Coppa Nevigata in Italy and the beginnings of organized dyeing activities during the Minoan Bronze Age culture on Crete, purple was a symbol of power of gods and kings, given as tribute, traded long distance as a high-priced commodity and taken as spoils of war. These activities involved money and brought prestige and were therefore probably controlled by authorities, but the production and use of purple was not restricted by prohibiting laws as it was to become during the Roman Empire. The extensive descriptions by Pliny the Elder have raised the interest of modern scientists, but their literal application did not give the desired results. It is through the experiments of modern archaeologists and artists that new knowledge has been produced and we are now closer to the practicalities of ancient purple-dyeing, though we still don't know how the large purple-dyeing factories along the Mediterranean coast were organized in terms of infrastructure, trade organization, specialization, labour division, etc.

The colour purple was soon incorporated into the clothing inventory of the Romans as a symbol of wealth and high standing within a highly demarcated social stratification. During the Roman Republic purple textiles or interior decoration were restricted by the financial means at one's disposal. By the time of the Roman principate its use became constricted by sumptuary laws that were reiterated and reinforced for centuries, although evidently circumvented just as often. The formalization of purple as a manifestation of the emperor's deification reached its climax in a ceremony called *adoratio purpurae* which involved the kissing of the emperor's purple robe.

The Arab conquest during the seventh century put an end to purple-dyeing on the Levant, though it was continued in the Byzantine empire until the sixteenth century and ended with the introduction of other purple dye stuffs like kermes, an insect dye. It is interesting to follow the long path of purple-dyeing and its evidently unbroken attraction all the way to Northern Europe, where a close relative of the Mediterranean varieties, the dog whelk, lives. There is some archaeological and written evidence for small-scale purple-dye production in Ireland, in connection with the illustration of manuscripts that were written in monasteries. Apart from that the import of purple dyed textiles from the Byzantine region by aristocrats continued and

even infiltrated Anglo-Saxon monasteries, much to the chagrin of men of the church like the Venerable Bede and Aldhelmus. The history of purple-dyeing shows a progressing symbolization of the colour from being an expensive asset but free for all to use, through becoming a symbol of absolute power in the hands of a select few, to finally be perceived as a sign of worldliness and lack of devotion to God. Nevertheless it seems that the attraction of the colour was greater than the risk of financial ruin, confiscation of property, capital punishment or excommunication.

Ars purpuraria or the art of purple-dyeing is a research area for the interdisciplinary collaboration of archaeologists, historians, linguists, textile researchers and others, both for practical experimentation and scientific research. This paper is a small contribution to that area of research, inspired by the author's own dyeing experiments (so far not with purple snails but with purple-dyeing lichens) and an interest in the consequences of the art of purple-dyeing in the political and legal spheres of society as reflected in ancient literary texts.

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