# SCRIPTA CLASSICA ISRAELICA

YEARBOOK OF THE ISRAEL SOCIETY
FOR THE PROMOTION OF CLASSICAL STUDIES

**VOLUME XXXVIII** **2019**

The appearance of this volume has been made possible by the support of

Bar-Ilan University
Ben-Gurion University of the Negev
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PUBLISHED BY
THE ISRAEL SOCIETY FOR THE PROMOTION OF CLASSICAL STUDIES
http://www.israel-classics.org

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Price $50

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Printed in Israel by Magnes Press, Jerusalem

# SCRIPTA CLASSICA ISRAELICA

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# Gems in Ancient Rome: Pliny's Vision

**Jordi Pérez González**

*Abstract*: Greco-Roman culture classified a great variety of gems. Authors such as Theophrastus, Plutarch and Pliny the Elder dealt with the subject. To know which gems were most highly valued in ancient Rome, it is essential to consult book 37 of Pliny the Elder. Book 37 of Pliny's *Natural History* is one of the few accounts on precious stones, gems and amber that collects information from various sources of antiquity, which in many cases have survived only thanks to Pliny's transcription. He catalogued the most prestigious gems, and discussed their origin, their exploitation techniques, their properties and their etymology. This *corpus* collects a total of 240 different variants of gems, of which, in 93 cases, its place of origin is known. In order to know to what extent the words of Pliny reflect the reality of the Roman market, we have analyzed as examples ten catalogs of modern collections of gems from various places and compared them with Pliny's comments. This analysis confirms the fact that the urban Roman elites valued precious stones extracted from the territories beyond the Roman Empire, especially those of the East. The ten catalogues contain more than 4000 different gems and glasses. It compares the information in Pliny's book on gems with ten current catalogs of various museums, adding more than 4000 analyzed copies. Both of these sources similar results and therefore confirms the interest of the Romans for these productions.

*Keywords*: gemstones; Pliny the Elder; international trade; luxury; Roman economy; urban crafts

## Introduction

Book 37 of the *Natural History* of Pliny the Elder offers a systematic catalog of the precious stones, gems and amber known during the first century AD. This catalog condenses all previous knowledge of classical antiquity about these type of objects, which are analyzed according to the categories of precious stones, and which are subsequently described by their appearance, their properties, the mining techniques for their exploitation and their provenance (Healy 1999). The objective of this paper is to study in detail the level of knowledge of Pliny the Elder about the place of origin of the precious stones and the mechanisms from which he builds his catalog. In particular, the high percentage of precious stones from the border regions of the eastern part of the Roman Empire is analyzed, especially those from India, Arabia, Egypt, Persia/Parthia and Africa.

Our working hypothesis is that the categorization established by Pliny offers a specific image of a sector of Roman commerce (which was dedicated to the distribution and consumption of luxury products) and its regulatory mechanisms. The works

dedicated to the analysis of this sector of the international commerce have rightly highlighted the importance of certain products (gold, perfumery, spices) (Sidebotham 1986, De Romanis 1996, Young 2001, Tchernia 2011, Levrero 2012, Ruffing 2014; McLaughlin 2014; Speidel 2015; Nappo 2018 and Adam Cobb 2019), but they have left others in a subordinated position whose function in the commercial circuits could be equally important. On the other hand, the description of Pliny allows us to delve into the system of values that modeled consumption practices and the exhibition of luxury goods of the 1st century AD Roman elite. In particular, the author's knowledge of the origin (distant and exotic) and the properties of precious stones reflects some of the criteria which were used by the elite for the "construction" of material value and symbolic value that were attributed to an object and that justified its use in certain contexts and scenarios. Our study starts from the comparative analysis with a series of ten gems catalogs from independent places: Berlin Museum, J. Paul Getty Museum, *Colonia Ulpia Traiana* (Xanten), The Archaeological Civic Museum of Bologna, Venice National Archaeological Museum, Luni, Udine Museum, University of Valencia, Gaul and Bari Museum. The results obtained from the study reveal a similar scenario to that described by Pliny. In parallel, this information has been contrasted with other literary references of the same period that would confirm the developed hypotheses. Thus, ultimately, the main objective is to determine which were the most valuable stones and where the precious stones most demanded by the Roman elites came from.

**From Pliny the Elder to Isidore of Seville**

Greco-Roman culture was able to classify a great variety of gems. Authors such as Theophrastus, Plutarch, and Pliny the Elder dealt with the subject. To Pliny, in particular, belongs the most extensive work detailing a knowledge of precious stones in antiquity (Book 37 of his *Naturalis Historia*). Pliny's book served in turn as a basis for the writing of other *corpora* on gems, the book by Isidore of Seville being the best example.

Due to the difficulties that are raised by the business of mining classification, I have decided to establish an alphabetic correlation to establish a greater knowledge of these minerals known as *gemmae* (Babelon 1904) or *lapides* (Jacob 1904).

As a general rule, precious stones are minerals constituted by solid, natural and inorganic materials. In contradistinction, the pearl is usually included among the gems, despite being composed of organic elements (Pérez González 2014). Gems are minerals cut and polished by a skilled craftsman and valued for their beauty (e.g. owing to their color, brightness, and transparency), durability, and singularity. Their main function has always been their use in jewelry, highlighting the latter's purely aesthetic and decorative value. But their use is also known outside the jewelry industry, for instance in order to make one's own brands (as engraved stamps), statues or statuettes, and even amulets, an industry which reflects their magical and attested medicinal properties (Boardman 1970; Henig 1994).

It should also be noted that not all gems in antiquity were necessarily the product of extraction from mining basins. Therefore, in some cases, glass, animal eyes, bones or fossils could be confused within this group and were considered as gems. With no need

to reject the old classification, the gems of vegetable or animal origin can be taken into account, and in particular the origin of them.

Greco-Roman authors often described gems by reference to daily elements that surrounded them. Therefore, it is not strange to hear the tonality of gemstones associated with the color of certain fruits, vegetables, or even animals. In mineralogical works, we can find descriptions of gemstones having the color of eagles and vipers, as well as being described as green apple, green leek, etc.

**The engraving of precious stones and the *gemmarii***

Many of the gems consumed by the Romans were used as engraving support. The specialists responsible for making these engravings, used usually as personal markings, or seals, as well as decorations for private and public environments, were known in antiquity under different job-titles, which included the following: *cavator*, *signarius* (CIL 6, 9239), *insignitor* (August. *Civ*. *Dei*, 21, 4), *gemmarum scalptor*, *sculptor*, and *gemmarius sculptor* (Plin. *NH*. 20, 134; 29, 132; 37, 60 and 63; CIL 6, 9436). These titles distinguished themselves from the *gemmarum politores* or *gemmarii*, who we assume were dedicated to the commercialization of precious stones as retail (Di Giacomo 2016; Pérez González 2019).

In Rome, we find only one inscription related to these artisans (CIL 6, 9436: *L(ucius) Uttedius Hermias / gemmarius sculptor / ann(os) vix(it) XLV*). Although it includes the artisan's age and mentions his craft, it does not state if he would also act as a tradesman or if, on the contrary, that task was more typical of the *gemmarii*. Similarly, the gem sellers were probably also trained to make all kind of arrangements or personalized engravings, without having to attend to a *gemmarius sculptor*.

The inscriptional formula used is also unclear about whether the artisan was entirely devoted to the arrangement and jewelry making of precious stones, to his engravings, or was also involved in sculpting figures or statuettes made of gems (Gacetti 2009).

The engraving of gems in classical antiquity was also known as *scalptura* (De Foville 1904) and the formula *scalptura ectypa* applies to relief gems known as cameos (Plin. *HN* 37, 174; Senec. *De benef*. 3, 26, 1).

In Rome there are only three inscriptions that refer to *gemmarii* from the first half of the 1st century AD (CIL 6, 9433-9435). It is known that two freedmen were dedicated to this trade in the notorious *sacra via*: *L(ucius) Albius L(uci) l(ibertus) Thaemella* (CIL 6, 9434) and *Q(uintus) Plotius Q(uinti) l(ibertus) Felix* (CIL 6, 9435).

The inscription found in the *Tomba di Pago* further corroborates the existence of the employment of children in this industry (CIL 6, 9437; Weeber 1995; Roux 2000; Bedini, Ferro, Rapinesi 2004).

As also happened with the word *margarita* (Pérez González 2014), we know of the use of a diverse number of Latin formulas that describe the word 'gem' used as a personal name: *gemma*, *gemmininiae*, *gemmula*, *gemmulus* and *gemmari* (Hirpinia 39; CIL 6, 245; CIL 11, 1088; CIL 13, 2975; ICUR-2, 4638, 4908, 5724, 6343; ILCV 1273; 3844).

**Places from which gems were extracted in antiquity: Pliny's vision**

In order to find out which gems were most appreciated in ancient Rome, it is essential to refer to Book 37 of Pliny the Elder, who catalogued the most prestigious gems, their origins (mining place or the trading place), and their qualities. The corpus of Book 37 collects a total of 240 different variants of gems, in 93 cases of which their place of origin is known. Of those gems whose origins are known, the precious stones from North Africa and the territories to the east of the Empire deserve special mention (Gliozzo, Mattingly, Cole, Artioli 2014). There is a clear predominance of gems from India, Persia, Egypt, Arabia, and Africa as the most desirable in the eyes of the Roman elites. Besides these regions, gems were also mined in Greece, the islands of the eastern Mediterranean, and the territories of Asia Minor (Figure 3).

Although precious stones were known to exist from the Mediterranean to the Indian Ocean (Sevillano-López, Javier González 2011), the strangest and most unique gems were always the most demanded.

So important was the commercial traffic of this product that there was even known a route under the name of the 'route of the precious stones' (Robert 2015). This would have taken as its starting point the northwest of India and the Bactrian region, before crossing the Middle East in search of markets near the Euphrates and the Tigris. This region was significant as a gathering place for all kinds of sumptuary goods from both Asia and Europe. This was due to its location as an obligatory step of all concomitant trade-routes. The Chinese chronicler Hou Hanshu reached the same conclusion: "They receive [the eastern provinces of the Roman Empire] all kinds of precious stones from foreign kingdoms" (HHS 88, 26). Moreover, recently Heldaas Seland has demonstrated how this traffic of precious stones was not unidirectional, because the African, Arab, and Indian elites also demanded exogenous stones for their own markets. In identifying this sumptuary traffic Seland analyzes the classical sources, especially the *Periplus Maris Erytraei*, wherein Seland verifies the trade of stones originating in Egypt in ports of Africa, Arabia, and India (Seland 2017). Similarly, the fact that one would be able to see a greater presence of gems of varied origin in the ports of Myos Hormos and Berenice would confirm the words of Strabo and Pliny on the role played by these cities as gateways of these products to the Roman markets (Str.16.4.24; Plin. *NH*. 6.102-103) (Figure 1). In parallel, in a recent study Zhaoming emphasized that the origin and the rarity of these precious stones did not stand out exclusively in the western markets, but that they were also demanded among the Asian elites as social prestige goods (Zhaoming 2014).

Thus, almost half of the precious stones mentioned by Pliny are of Indian or Oriental origin (51%), with a quarter coming from the African continent (22%), and just over another quarter from the European continent, differentiating between the territories of the western Mediterranean (7%) and the eastern Mediterranean (20%) (Figure 2a). The precious stones obtained in the western Mediterranean were not as common among the Roman elites, maybe because of a lack of quality, or simply because of their easy accessibility which decreased their value.

In order to know to what extent the words of Pliny convey a reality within the Roman markets, we have analyzed *ad exemplum* ten catalogues of gems of independent places among themselves. In this study we have used the following catalogues: Berlin

Museum (Weiß 2007), J. Paul Getty Museum (Spier 1992), *Colonia Ulpia Traiana* (Xanten) (Platz-Horster 1994), The Archaeological Civic Museum of Bologna (Mandrioli Bizzarri 1987), Venice National Archaeological Museum (Nardelli 1999), Luni (Sena Chiesa 1978), Udine Museum (Tomaselli 1994), University of Valencia (Alfaro Giner 1996), Gaul (Guiraud 1988) and Bari Museum (Tamma 1991). The analysis of this information enables us to know which gems were more usual within the Roman markets and their origins. In summary, the results of the ten samples reveal a panorama similar to that described by Pliny. Nearly 75% of the gems in each catalogue originated from North African and Eastern territories: Xanten 80% (Africa 15%; India 18%; and East 47%), Berlin Museum 81% (Africa 18%; India 19%; and East 44%), J. Paul Getty Museum 73% (Africa 19%; India 16%; and East 38%), Bologna 70% (Africa 17%; India 16%; and East 37%), Venice 49% (Africa 11%; India 13%; and East 25%), Luni 82% (Africa 17%; India 18%; and East 47%), Udine 72% (Africa 18%; India 18%; and East 46%), Valencia 77% (Africa 18%; India 20%; and East 39%), Gaul 78% (Africa 14%; India 20%; and East 44%) and Bari 81% (Africa 17%; India 17%; and East 47%) (Figure 2b).

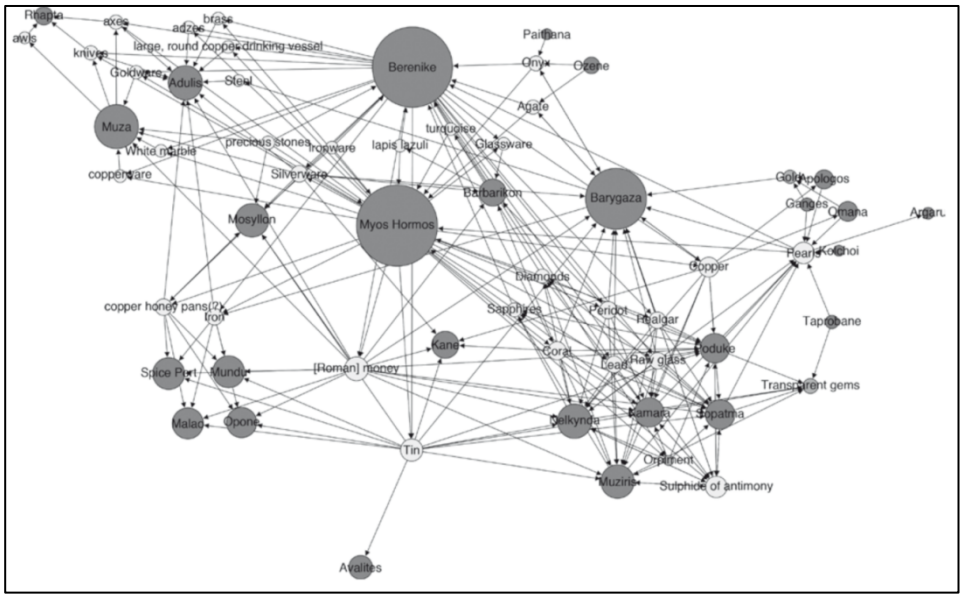
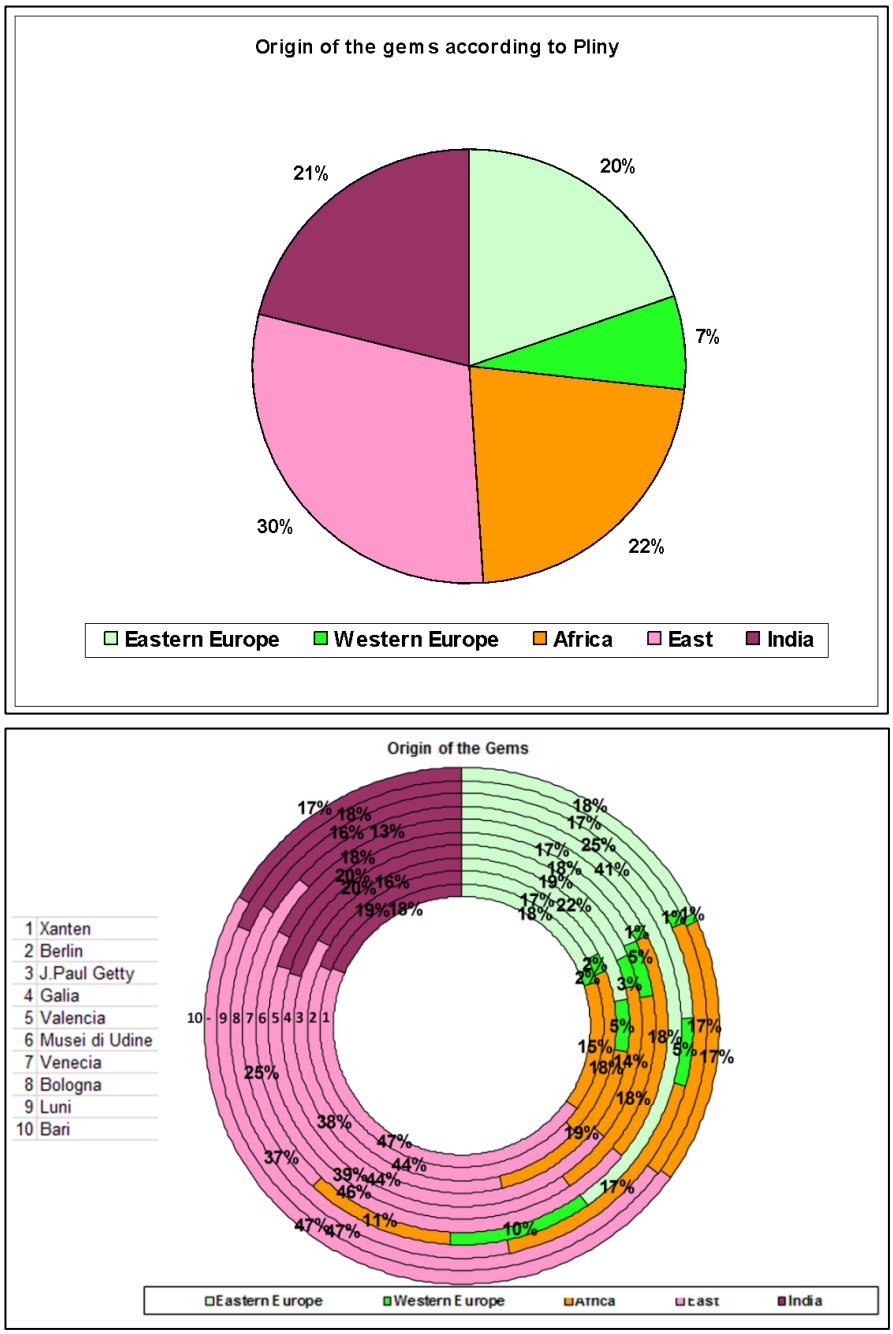



**Figure 1**. Visualization of gem traffic and minerals described in *Periplus Maris Erytraei*. In: Seland 2017, 53, Figure 3.




**Figures 2a and 2b**. Above: origin of the gems of Plin. *NH*. 36-37. Below: origin of the gems in different *corpora*. See further: Gems Rome file: https://github.com/JordiPerezGonzalez/Gems-in-Ancient-Rome.git

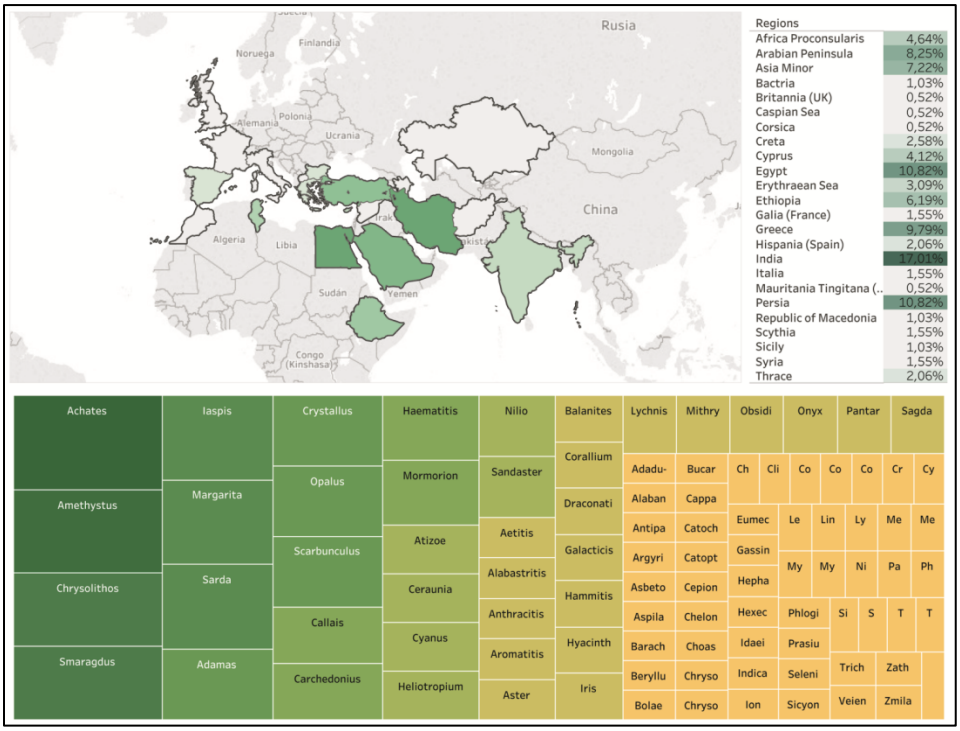



**Figure 3**. Provenance of the precious stones of Plin. *NH*. 36-37.
https://public.tableau.com/profile/jordi2068#!/vizhome/gems/Dashboard1

## The gems among the elite

The continuous contact between Greek, Egyptian, and Eastern peoples is a key element in understanding the later expansion of the use of gems as jewels, amulets, and medicines throughout the Mediterranean world during antiquity (Babelon 1904).

Once the minerals were extracted from the earth, they had to be worked by a group of specialist craftsmen. This group was dedicated to polishing the precious stones and engraving them with an image or an inscription in order to make them marketable.

The gems were widely used in jewelry, especially as the central element of rings or were made into earrings, bracelets, headbands, necklaces, etc., thereby becoming a symbol of social status (Clark 1986; Henig 1997) and an mark of luxury (cf. Ovid. *Metam*. 10, 2, 2). For his part, Martial makes mention of the encrustation of gems as ornamental elements in hair, hats, fibulas, footwear, and many other objects (Mart. *Epigr*. 14, 20 and 40; 7, 72, 8). They were also used to set in cups or other items of precious tableware (Sil. Ital. *Punica*, 13, 255; Cic. *In Verr*. 4, 27, 62; Juv. *Sat*. 5, 38-44).

There are also a few references in antiquity about the eccentricities of some individuals as far as samples of excessive opulence are concerned. For example, Caligula gave his horse a necklace full of gems, and also built galleys full of jewels

(Suet. *Calig*. 37, 53, 55; Plin. *NH.* 37, 6). It is also attested that news once circulated that the palace of Cleopatra would be covered with encrustations of precious stones (Lucan, *Pharsalia*, X, 119-122.). Pompey in one of his triumphs carried a game-board made of precious stones measured at three feet and four lengths (Plin. *NH.* 37, 6). Augustus also offered to the temple of Capitoline Jupiter a sum in precious stones and pearls equivalent to fifty million sesterces (Suet. *Aug*. 30). Meanwhile, his wife Livia consecrated a 150-pound glass block to the Capitol (Plin. *NH.* 37, 27). Subsequently, the news was that Nero would possess a cup with gems valued at 300 talents, as well as a glass basin for 150,000 sesterces. These *trulla* of *crystallum* were bought by a *mater familias* (Plin. *NH.* 37, 29).

The Roman emperors used gems as a form of personal insignia. Julius Caesar chose the device of an armed Venus, since he saw himself as a descendant of the goddess through Aeneas (Dio Cassius, *Roman History*, XLIII, 43), while Augustus had chosen a sphinx as his intaglio (one among the three seal stones he possessed) (Plin. *NH*. 37, 5, 10). Claudius wore emeralds and sardonyx; while Caligula, Elogabalus, Severus Alexander, and Diocletian possessed gems of inestimable value (Plin. *NH.* 9, 114). We also have evidence from Lollia Paulina, wife of the Emperor Caligula, who wore pearls and emeralds worth 40 million sesterces to a dinner party (Plin. *NH.* 9, 117). Similarly, Nero ordered his *histriones* covered with gems, as Cleopatra had previously done with his slave Nabis (Plin. *NH.* 37, 6).

One of the few jewels with which men could be seen in public was the ring, which they used to wear on the ring-finger of the right hand. Many of these rings were finished off with a precious stone (Mart. *Epig*. 3, 29; 5, 11; 11, 37; 11, 54; Quint. 11, 142; Gagetti 2000). It was not very common to find men publicly wearing bracelets, necklaces, etc. (Plin. *NH.* 33, 39).

The public display of jewelry by women, however, was common in antiquity. When women publicly displayed their jewelry they showed the wealth of their family, at the same time accentuating their own figures, in what K.-W. Weeber calls making use of a 'Status Symbol' (Weeber 1995). The enactment of sumptuary laws to stop public ostentation among the adult female elite (*lex Oppia* from 193 BC; Livy 34, 1) allows us to indirectly know the tastes and customs of the Roman population (Plin. *NH.* 33, 40; Sen. *Ben*. 8, 9, 4; Juv. 6, 457).

Inside the *domus*, jewels were safeguarded by the most trusted slaves, perhaps the *atrienses*, and were sheltered in a safe. In the case of jewels made of pearls, the responsible slave could be known under the formula *ad margarita* (CIL 6, 7884; 9543; Granino Cecere 2012), and the objects inlaid with gems were probably entrusted to a special slave who took the title of *paepositus ab auro gemmato* (CIL 6, 8734-8736). And when taken out for use at dinner-parties they were watched by special guardians "*to count the gems and keep an eye on the guests' sharp finger-nails*" (Juv. 5, 37-45) (Richter 1968).

The desire to gather all kinds of luxuries led people to amass large collections of gems. This is an indication that there was interest in the art of gem engraving as well as patronage for famous gem engravers. Of great fame was the collection of King Mithridates whose treasure was inventoried after his defeat. The cataloging continued for thirty days and there was even counted up to two thousand cups of onyx with frames of gold. The booty was collected by Pompey and was deposited as an *ex-voto* in the

Temple of Jupiter Capitoline (Rome) (Plin. *NH.* 37, 1). Also, Julius Caesar was an eager collector (Suetonius, *Julius Caesar*, XLVII); he is said to have deposited as many as six cabinets (*dactyliothecae*) in the temple of Venus Genetrix (Plin. *NH*. 37, 5) (Richter 1956).

Not satisfied with their ornamental use in jewelry, dresses, and tableware, gems were also used to make statuettes and statues as well as to decorate them. Already in Greek times statues were decorated with gems, though the ornamental use of gems was reserved mostly for public and religious purposes. The throne of the statue of Zeus at Olympia was "*adorned with gold and precious stones, as well as with ebony and ivory*" (Pausanias, V, 11) (Richter 1956). In Rome, the craftsmen dedicated to embedding precious stones as eyes in statues (Gagetti 2004/5) would be known as the *fabri ocularii* (Gagetti 2004/05), (CIL 6, 9402-9403). The eyes of statues in early Greek times were inlaid with ivory and precious stones as well (Plato, *Hippias major*, 290, b, c) (Richter 1956). A walk among the large collections of busts and portraits of any Roman art museum can help us understand the desire of Roman artists to give these statues a certain naturalness by encasing gemstones. Many of them have lost this element of naturalism because the gemstones have been stolen or simply because they have been lost after so long (Plato, *Hipp. major*, t.l. 2, p. 346; Plin. *NH.* 37, 17; Aeliani. *De nat. An*. 15, 8). There is even the Roman custom of including gems in funeral statues by testamentary order. In these documents even the type and number of gems delivered were specified (Plin. *NH.* 9, 60; II2/5, 713 = CIL 2, 2060, 2326, 3386; CILA 2.2, 358; IRPCádiz 534; CIL 14, 2215; Del Hoyo Calleja 1994).

**Conclusion**

The majority of the gems imported from the East would be chalcedonies, red jasper, and cornelian. Along with the preference for gems from the East of the Roman Empire (Ozcáriz, in press), there are gems of European origin, as the green chrome chalcedonies are from Eskeşehir in the center of Anatolia (Platz-Horster 2010).

It is important to note that only very few of the engraved gems in our museums have proven or even alleged geographical origins. Through the aid of advanced techniques, such as X-ray fluorescence (ED-XRF) and Raman spectroscopy, the identity of the gemstones could be known. Yet, even with the mineralogical analysis that exists it is difficult to assign specific provenances to ancient gemstones (Entwistle, Adams 2011). Future analysis and the discovery of ancient mines (Callieri 2004; 2006; 2011) will be needed to corroborate the hypotheses proposed here.

To conclude, the analysis of the catalogs of modern precious stones we have examined reveals a similar scenario to that presented by Pliny in Book 37 of *Natural History*, signaling a large presence in the Roman markets of precious stones from the East and Africa. Thanks to the variety of the ten catalogs analyzed, we believe that the inclusion of these new catalogues and newly available data will serve to confirm our hypothesis presented here (Remesal 2018).

As we defend in our analysis, the results would confirm Pliny's comments, highlighting the preference of Roman elites for precious stones from the territories to the east of the Roman Empire.

Finally, the deductions presented here are confirmed by the comments of several authors of classical antiquity. There are many literary sources that highlight the importance of precious stones from Egypt (Mar. *Epig*. 11, 11, 1), India (Mar. *Epig*. 1, 109, 4; 10, 38, 4), Scythia (Mar. *Epig*. 4, 28, 4), or from the coasts that surround what is known as the Eritrean Sea (Mar. *Epig*. 5, 37, 4-5; 9, 2, 9-10; 9, 12 (13) 5; 8, 28, 14) (Pérez González 2017). These references are complemented by other examples: the *Edictum De Pretiis Rerum Venalium* (24.1-26.274), some texts of the *Digest* (39, 4, 16 § 7) some passages in the Chinese chronicles of the Han dynasty: HHS (Hou Hanshu), 88, 22-27; JSH (Jhin-shu), 97, 14; JTS (Jin Tangshu) 198, 31-32.

**Acknowledgments**

This work has been funded by 2017 SGR 512, HAR2017-85635-P and ERC-2013-ADG-340828. We thank José Remesal, Víctor Revilla, Antonio Aguilera for advice on the analysis, access to unpublished data, and fruitful discussions on previous versions of the manuscript.

The Dataset is distributed under the terms of a Creative Commons Attribution-Share Alike 4.0 International Licence. The source code of the model is licensed under a GNU General Public Licence; both can be downloaded from https://github.com/JordiPerezGonzalez/Gems-in-Ancient-Rome.git (accessed 9 June 2017).

CEIPAC, University of Barcelona

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