A Rare Rock-Crystal Object from Pompeii

A Furniture Inlay, a Medical Instrument, a Magnifying Lens or a Gaming Piece?

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Abstract

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The aim of this paper is to discuss the function of a small – 16 mm in diameter and 7 mm high – lathe-turned object in rock crystal. This is an object in a material that was regarded as very valuable and belongs to a relatively rare category of finds, but what merits discussion concerning its function is the fact that it is a true lens. As no definitive answer as to its function can be given, a number of hypothetical possibilities are presented: that it was a furniture inlay; that it functioned as a burning glass for medical purposes; that it was a magnifying aid used in the manufacture of gems and suchlike objects; that it was a magnifying aid employed when writing and/or reading, or that it was a magnifying gaming piece that was used for playing a specific type of board game. Of the different solutions presented, the suggestion that it was a gaming piece seems most likely.

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Introduction

Among numerous other finds yielded by the excavations in Insula V.1 by the Swedish Pompeii Project is a small find that is of special interest: a lathe-turned plano-convex object in rock crystal from a small taberna (V.1, 27) which was used for dyeing cloth in. It is of relatively small size, approximately 16 mm in diameter and 7 mm high (Fig. 1). Rock crystal was a much appreciated material in Roman times; indeed it was regarded as very valuable (Pliny the Elder, *Natural History*, 37.204). It is not the value of this object that attracts attention, however, but rather its shape and possible function. For what makes it interesting is that it is a true lens, regardless of what function the object may originally have had.

Jay M. Enoch – professor of optometry at University of California, Berkeley – has put forward the following definition of a lens in a publication concerning the function of lenses from antiquity:

The lens material must be acceptably transparent and homogeneous, and surfaces must be reasonably regular. At least one surface must be curved, and surface irregularities must be modest. There should be a principal axis for the two surfaces, and the lens must be able to form an adequate image (Enoch 1998, p. 275).

The find from Pompeii complies with this definition: the rock crystal is perfectly transparent and free from any form of flaws; the quality of the craftsmanship is high, the object being perfectly cut, and the object creates a good image (Fig. 2).

Fig. 1. A lathe-turned plano-convex object in rock crystal from Pompeii. Photo: Hans Thorwid.

Fig. 2. The magnifying properties of the lens from Pompeii. Photo: Hans Thorwid.

A long-lasting debate: the function of lens-shaped objects in antiquity

Lens-shaped objects – the majority of which are plano-convex, and only a minority biconvex – constitute a relatively rare category of finds from the ancient era. Finds are known from a small number of sites in the Mediterranean area, finds spanning from the Minoan Bronze Age to Roman Imperial times, i.e., some two millennia (Syer Cuming 1855, pp. 144–145; Beck 1928; Sines & Sakellarakis 1987; Plantzos 1997; Enoch 1998). These finds not only date from different eras, but also come from different contexts, and there is nothing to suggest that they all had the same function. Some functions appear to be generally agreed upon in the scholarly community, namely: that lens-shaped objects were used in both plastic art and as furniture inlays (Plantzos 1997, p. 452; Enoch 1998, p. 284), and that lenses were used as burning glasses both for medical purposes and for kindling fires in the Classical Greek era and later periods (burning glasses to kindle fires: Boardman 1972, p. 382; Sines & Sakellerakis 1987, p. 193; for medical purposes: Lascaratos & Marketos 1997, p. 156).

Let us commence with the possibility that this find was originally a furniture inlay, which in the view of the present author is the least likely interpretation. Ivory, glass and semi-precious stones were used to embellish expensive furniture of a type that was found exclusively in wealthy people's homes. The context of the find – a small workshop – suggests that the rock crystal object had some other function.

As mentioned above, one possible function of lenses, as suggested in the scholarly literature, is that they were used for medical purposes. This suggestion is based on a passage in Pliny the Elder: "I find that among doctors there is considered to be no more effective method of cauterizing parts that need such treatment than by means of a crystal ball so placed as to interrupt the sun's rays" (Pliny the Elder, *Natural History*, 37.10,28, translation D. E. Eichholz). In other words bi-convex lenses – which a ball essentially can be said to be – were used as burning glasses, employed for medical purposes to close wounds or to remove tissue.

A passage in Aristophanes' *Clouds* makes it clear that lenses used as burning glasses could

be found at pharmacists, and in the play it is suggested that one of these ought to be used to set fire to a legal document (Aristophanes, *Clouds*, 766–768). Whether these lenses were of rock crystal or glass is not entirely clear; the word used is *hyalos*, which can have both meanings. The passage in Aristophanes, however, appears to refer to rock crystal (Liddell-Scott-Jones *Greek-English Lexicon*, s.v. "hyalos"). Similarly Theophrastus notes the use of burning glasses in his work *On Fire* (Theophrastus, *On Fire*, 73). As the find in question is a plano-convex lens, rather than a bi-convex one, it is suggested that other interpretations are more probable.

There is much to suggest that lens-shaped objects could have had other functions too, and there has been some scholarly debate concerning this issue. It cannot be said that it constitutes a single debate; rather I would argue that there are two, closely intertwined, scholarly debates relating to these discussions. As these debates can shed light on the function of the object discussed in this paper, I shall try to give a brief summary of the main arguments put forward.

One concerns the question whether or not magnifying devices were employed by craftsmen in the manufacture of objects with miniature motifs, such as cut gems, gold-glass, cameos, and coins. The quality and minuteness of detail of some of these objects is truly remarkable, and most scholars who work with these finds today must use magnifying devices to be able to study them. In the scholarly debate two different positions prevail. However, as pointed out by George Sines, these two positions need not be mutually exclusive (Sines 1992, pp. 67–68).

Some scholars have argued that crafts like gem-cutting were dominated by myopic (i.e., short-sighted) artisans (Boardman 1972, p. 382; Gorelick & Gwinett 1981, pp. 27–28; Plantzos 1997, pp. 458–459). The ancient Greek and Latin literary sources give us no guidance as to whether craftsmen used magnifying glasses, and the silence of the sources has been used as an argument against the idea that they did use such devices. For example, John Boardman argued that "it is unlikely that Pliny would have failed to mention their use" (Boardman 1972, p. 382).

Yet other scholars have strongly advocated the view that magnifying aids were necessary for the craftsmen who manufactured them (Beck 1928, p. 327; Sines & Sakellarakis 1987, p. 194). One of the arguments put forward is based on detailed study of the actual objects, for the quality and exactness of these is very difficult to achieve without any form of magnifying device (Sines 1992). This claim finds support in a limited number of finds made in contexts associated with the manufacture of these objects (Sines & Sakellarakis 1987, p. 193). George Sines and Yannis Sakellerakis have also pointed to the experiences of the engraver Laurentius Natter, which were published in his work *A Treatise On the Ancient Method of Engraving on Precious Stones, Compared with the Modern* (1754). For it was Natter's conviction that it was not possible to achieve the fine detail in cutting the gems without such aids (Sines & Sakellarakis 1987).

Another scholarly debate deals with the problem whether magnifying aids were used when writing and reading manuscripts. There is a single passage in the ancient literature that possibly could support the view that they could have been used when reading: Seneca the Younger's mention in his work *Natural Questions* that a glass ball filled with water made letters appear larger (Seneca the Younger, *Natural Questions*, 1.6, 5). Not a single source mentions the use of lenses as a reading device, however. Given that the ancient authors were keen readers, the failure to mention magnifying lenses strongly suggests that they did not fill this function in antiquity. And as argued by Nicholas Horsfall, there was little or no need for such devices among the eli-

tes: slaves who were secretaries and aides did much of the reading (Horsfall 1995, p. 54). Indeed most evidence seems to support the commonly held view that corrective spectacles were a thirteenth-century invention (Syer Cuming 1855; Rosen 1956).

Yet finds of writing, writing of so small a size that it is not readable for the naked eye, have led some scholars to the idea that some sort of magnifying devices were utilized when they wrote the manuscripts. Jay M. Enoch quotes the following from a letter by the editor of the Dead Sea Scrolls Project – James Charlesworth – who claims that lenses were indeed used for this purpose in the Roman Era:

Let me stress that the Qumran phycteries (from the Dead Sea cave area) are so small and integrally made that only with very fine magnification can we read the Hebrew today. That means that they must have had a way of magnifying the writing in antiquity (Enoch 1998, p. 276).

A magnifying gaming-piece?

From the above we can conclude that lens-shape objects could have a number of different functions, and the object discussed in this paper may well have had one of these. Yet I would argue that another interpretation is possible to put forward, namely that it was a gaming piece.

Playing board games and dice was a very popular pastime in all parts of the Roman World, and although complete sets constitute a sparse category of finds, there are innumerable stray finds of gaming pieces and dice that bear testimony to this. A limited number of finds of complete board-game sets are known from funerary contexts in the Roman provinces, for example from Roman Britain (Low 1907–09, p. 257; Whiting *et al.* 1931, pl. 56; Biddle 1967, pp. 231, 244–245; Potter 1979, pp. 75–76).

The popularity of these games has also resulted in a rich literary record, not least in the works of poets such as Ovid, Martial and Juvenal. In addition to this there is a small body of iconographic representations of people playing dice or board games (Austin 1934a; Austin 1935; Schädler 1998). Despite the negative sentiments held by the Roman authorities, who instituted legal prohibitions against gambling and dicing (Lamer 1927, col. 1910), it was not infrequent to find people at bars, inns and taverns playing dice and board games (*Appendix Vergiliana*, *Copa*, 37). For example, Martial mentions dicing in a dodgy bar (Martial, *Epigrams*, 5.84).

Two other finds from the same context are linked to board games: two plano-convex gaming pieces in glass. Gaming pieces were made in a wide array of different materials – in glass, ivory, bone, stone and semi-precious stone – often in contrasting colours such as black or white (Ovid, *Ars Amatoria*, 2.203–208; Martial, *Epigrams*, 7.72, 8; 8.45, 3; 11.36, 1; 12.40, 3; Austin 1934a, p. 26; Austin 1934b; Austin 1935, pp. 80–81; Rieche 1984, pp. 19–20).

We know that various board games were played, and that these include a game that was played on boards with six six-letter Latin words, arranged in two columns (Austin 1934a, pp. 31–33; see also Schädler 1998, p. 11). Hypothetically it is possible to envisage that gaming pieces that had a magnifying effect – magnifying the letter on which the piece stood (see Fig. 2) – would be very attractive in playing such a game.

Conclusion

A number of different suggestions as to the function of this lens-shaped rock crystal object have been given; however, there is no obvious answer. I would argue that it appears less likely that it was some form of furnitu-

re inlay or indeed linked to an object of art, given the find context of the object. On the same grounds it is difficult to argue that it was a medical instrument, an aid in writing or reading manuscripts with minute text, or a magnifying glass in the manufacture of gems and suchlike objects. A possible scenario is that the men working in the small workshop sometimes played board games, and that someone simply lost one of his finest gaming pieces. Thus the suggestion that this may be a gaming piece is perhaps the strongest case of the different solutions presented, yet it has to be stressed that this suggestion is purely hypothetical.

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