Received: 1st June 2017 Accepted: 2nd October 2017

A Third Horoscope-Gem, Twin of the Parisian 'Seyrig Gem'

Stephan Heilen
University of Osnabrück
stheilen@uni-osnabrueck.de

Attilio Mastrocinque*
Università di Verona
attilio.mastrocinque@univr.it

Abstract

This article draws scholarly attention to a magnificent gem that came to light in Italy in 2002. It explores the hitherto overlooked, very close relationship between this gem and a better known Parisian gem from the 3rd c. CE, taking into account other gems, too, as well as coins, especially those of the Alexandrian zodiac series of 144/5 CE. While the Parisian gem is certainly ancient, and probably inspired by the Alexandrian coin series, its Italian twin turns out to be a modern imitation. The close comparison between both gems sheds much new light on the authentic Parisian horoscope-gem which had in the past, despite its being a unique piece of ancient art, received little scholarly attention.

Key words: Coin, Gem, Horoscope, Iconography, Magic, Imitation.

Una Tercera Gema-Horóscopo, Gemela de la "Gema Seyrig" Parisina

Resumen

Este artículo centra la atención investigadora en una magnífica gema que salió a la luz en Italia en el 2002. Estudia lo que hasta ahora se ha pasado por alto: la estrecha relación entre esta gema y una gema parisina mejor conocida procedente del s. III d.C., teniendo en cuenta también otras gemas, así como monedas, especialmente las de la serie zodiacal alejandrina del 144/5 d.C. Mientras que la gema de París es efectivamente antigua y probablemente está inspirada en la serie de monedas de Alejandría, su gemela italiana parece ser una imitación moderna. La minuciosa comparación entre ambas gemas arroja nueva luz sobre la auténtica gema-horóscopo parisina que en el pasado, a pesar de ser una pieza única del arte antiguo, ha recibido poca atención por parte de los estudiosos.

Palabras Clave: Moneda, Gema, Horóscopo, Iconografía, Magia, Imitación.

---

* He wrote the sections "The purpose of the Palestrina gem" and "Conclusion". We thank Roberto Darelli and Diana Raiano (Museo Archeologico Nazionale di Palestrina), Silvana Balbi De Caro, Michele Lustrino, Guido Petruccioli, Giuseppina Pisani Sartorio (all four Rome), Alexander Jones (ISAW/NYU), Gertrud Platz-Horster (Berlin), Barbara Tasser (Innsbruck), Dorian Greenbaum (Univ. of Wales Trinity Saint David) and especially Erika Zwierlein-Diehl (Bonn) for valuable help.

1. *Introduction*

Up to the present, only two ancient horoscope-gems were known: one in Paris (*Bibliothèque nationale de France*), whose astronomical data are those of 23 June 215 CE[1], and one in Kassel (*Hessisches Landesmuseum*), whose astronomical data are those of 11 September 195 CE[2]. Both of these gems feature the respective astronomical data through busts of the seven planetary deities (Sun, Moon, Saturn, Jupiter, Mars, Venus and Mercury) in profile that are associated with pictures of the zodiacal signs in which the respective planets happened to be at the given moments in time (presumably the birthdays of their owners)[3]. However, the specific arrangements of these iconographic elements are profoundly different:

On the Parisian gem (see fig. 1), they all occupy the obverse which features two concentric rings around a central space of elliptic shape. Each of the two rings is divided into seven sections of roughly equal extension by lines that radiate from the central ellipse. The outer ring features the planetary busts, the inner ring the corresponding zodiacal signs; the central elliptic space features the ascendant 11° TAU through the picture of a bull with the Greek number letters IA above his back.

The Kassel gem features the busts of four planetary deities on the obverse and three (plus a representation of Fortuna in the Egyptian form of Neotera reclining on a bed) on the reverse[4]. Below each of the seven busts is the picture of a zodiacal sign (Mars and Venus share one sign, Libra). The ascendant is either omitted or somehow implied in the arrangement of the other iconographic elements[5].

1 See NEUGEBAUER 1969, GUNDEL – BÖKER 1972, addendum (without page number) to col. 679,32 (with lapsus: "23. Juni 213"), GUNDEL 1978: 446, n. 30, GUNDEL 1992: 131 and 182, ZWIERLEIN-DIEHL 2010: 261, MASTROCINQUE 2014: 180, no. 487, and HEILEN 2015: 278, s.v. Hor. gr. 215.VI.23. A color picture with digital magnifying glass is available online at http://medaillesetantiques.bnf.fr/ws/catalogue/app/report/index.html (enter search argument "Neugebauer").

2 See ZAZOFF 1970: 216, no. 80 (with fig. 80a–b in vol. 2, plates 95), HEILEN 2009 and HEILEN 2015: 329 (s.v. Hor. lat. 195.IX.11), all three with references to earlier research literature. Color pictures of both sides of this gem (a yellow jasper) are available online at http://ikgf.fau.de/content/newsletter/IKGF_Newsletter_11_WEB.pdf (p. 11). It was purchased in 1701 by landgrave Charles of Hessen from the Venetian aristocrat Antonio Capello who, in his turn, had bought the gem from the heirs of Charles Patin, a French scholar and collector of antiquities (esp. coins and gems) in Padua (ZAZOFF 1970: 179; BARBIERATO 2008: 15).

3 In the case of the Parisian gem this is particularly likely because the ascendant dates the horoscope to about 1:45 a.m. (see the appendix below).

4 On Neotera, see MASTROCINQUE 2012.

5 See the discussion in HEILEN 2009: 278–281.

Fig. 1: Cast of the Parisian horoscope-gem (photo Mastrocinque)

The new, third horoscope-gem (see fig. 2 below) has come to light in Italy and is on permanent display in the *Museo Archeologico Nazionale di Palestrina*. Iconogra-

Fig. 2: The horoscope-gem from Palestrina, illuminated from behind (reproduced with kind permission of the Polo Museale del Lazio – Palestrina, Museo Archeologico Nazionale).

phically and astronomically speaking, it is a twin of the Parisian gem. However, just as human twins tend to share many yet not all physical characteristics, the two gems from Paris and Palestrina are, despite their remarkable similarity, of different make: while the Parisian gem is a light blue and brown nicolo measuring 2.3 x 1.7 cm[6], the Palestrina gem is made of rock crystal, with one flat and one convex surface, and larger (3.6 x 2.4 x 0.8 cm). While both are, technically speaking, intaglios, the imagery that we find on the convex surface of the Palestrina gem is mirrored on the Parisian gem.

This discovery raises many questions and deserves close scrutiny, not last because Gundel in his authoritative monograph on the zodiac in ancient literature and art declared that the Parisian gem was, besides the famous lion horoscope from Nemrud Dağı, "das wichtigste bisher bekannte Bildhoroskop aus der Antike"[7]. We shall first report what little is known on the provenance of both gems, then (for the first time ever)[8] analyze their imagery's overall arrangement and their differences in detail, discuss the purposes of their creation, and eventually point out questions for future research.

2. *Provenance*

The Parisian gem was purchased in 1967 by Henri Seyrig (1895–1973) from a dealer in Beirut. This is known through Otto Neugebauer (1899–1990) who published a brief analysis of the gem's planetary configuration after receiving a letter and a cast of the gem from Seyrig[9]. Seyrig had been director of the antiquities of

---

6 Cf. MASTROCINQUE 2014: 180, no. 487, as well as NEUGEBAUER 1969: 361, n. 1. For the term 'nicolo' cf. ZWIERLEIN-DIEHL 2007: 305–314 ("Das Material der Gemmen"), esp. 308: "NICOLO bezeichnet keine Steinsorte, sondern eine besondere Form des Schnittes. Nicoli sind Intaglien aus Lagenachat, bei denen das Bild durch die helle Oberschicht hindurch in die dunkle Unterschicht eingeschnitten ist und daher dunkel in hellem Grund erscheint. Meist ist die Oberschicht hell-, die Unterschicht dunkelblau, doch kommen auch andere Tönungen der hellen und dunklen Lage vor. Der Rand der Gemmen ist in der Regel konisch abgeschrägt, so daß er als dunkler Rahmen erscheint. Nicoli kommen gegen Ende des 2. Jahrhunderts v. Chr. auf, bleiben aber selten, erst im 2. Jahrhundert n. Chr. erfreuen sie sich großer Beliebtheit. Die Bezeichnung Nicolo kommt von dem Italienischen *onicolo*, kleiner Onyx. Die antike Bezeichnung war vielleicht *aegyptilla*, die nach Plinius ihren Namen vom Fundland hat (Plinius 37,148)." With regard to the Parisian gem, ZWIERLEIN-DIEHL writes (e-mail, 7.7.2017) that the agate's light blue upper layer is here relatively thick, so that the motifs could only partially be cut through all the way into the dark lower layer.

7 GUNDEL 1992: 128. Cf. IBID.: 253, no. 173. On the lion-horoscope, see HEILEN 2005 and HEILEN 2015: 214–215 (with much further literature).

8 Neugebauer had limited his note published in 1969 to a brief discussion of the astronomical details.

9 NEUGEBAUER 1969: 361. Seyrig's letter, which may have contained more details on the purchase's circumstances and the gem's provenance than Neugebauer quotes, seems to be lost. We thank Alexander Jones for the information that Neugebauer's files on papyri and a few similar kinds of

Syria and Lebanon under the French Mandate since 1929 and was director of the *Institut Français d'Archéologie de Beyrouth* from its creation in 1946 until 1967[10]. In 1972 Seyrig donated the majority of his private collection to the *Département des Monnaies, médailles et antiques de la Bibliothèque nationale de France* where the gem was inventoried with the number 'Seyrig.1972.1317.116'. Later scholars who were unaware of this transfer reported the gem's whereabouts to be unknown[11]. Moreover, due to a lapsus, the gem ended up among the BnF's Hebrew gems[12]. It was only in March 2013 when the mistake was noticed thanks to an initiative of Alexander Jones. The scanty information quoted by Neugebauer from Seyrig's letter indicates a Syrian (or, more broadly speaking, oriental) origin of this gem. The *Bibliothèque nationale* keeps a file of handwritten notes by Seyrig on his gems, which, however, does not contain any information on this specific gem.

The Palestrina gem[13] was impounded in 2002 by the Italian *Guardia di Finanza* in the course of an operation that comprised several raids in various places connected to the Roman antiquarian market, with ramifications to other countries. These police raids have restituted to the Italian State an enormous amount of material from various epochs and provenances. This material has been examined by Sandra Gatti who was then in charge of the Office of Exportation (Rome) and of the Archaeological Museum of Palestrina. An oriental origin of the gem in question cannot be excluded because among the impounded objects were other jewels and precious stones of Egyptian and Syro-Lebanese provenance (they have been examined in collaboration with the orientalist Marco Rossi) as well as other material of certainly illegal provenance and various forgeries. The Palestrina gem has been classified among the authentic ancient artifacts by the experts mentioned above.

Interestingly, this gem had not been entirely unknown to scholars before 2002. In 1995, Guido Devoto, a Roman professor of geology[14], had published a photograph

---

documents are divided between a larger set held by the University of Michigan papyrus collection and a smaller set that David Pingree passed on to him. Neither of these two sets contains anything on the Seyrig gem (Jones via e-mail, 7 May 2017).

10 For details, see Siebert 2001, and Gelin 2005.

11 Zwierlein-Diehl 2010: 261: "jetziger Aufbewahrungsort unbekannt". No information about the gem's whereabouts in Gundel 1992.

12 Personal communication of A. Jones.

13 We owe all information on this gem's provenance to Roberto Darelli and Diana Raiano of the archaeological museum of Palestrina.

14 *Università la Sapienza*, *Dipartimento di Scienze della Terra*. This department resulted in 1985 from

and a summary description in an article on ancient artistic uses of rock crystal[15]. This article seems to have been overlooked by all scholars working on ancient horoscopes or representations of the zodiac, partly because it had been published in a numismatic periodical of limited circulation, partly because it appeared after the publication of the authoritative study of Gundel 1992[16]. It will be useful to quote Devoto's legend to the photograph and the relevant paragraph of his main text in full:

> Legend: "Cristallo di rocca. Gemma ovale piano-convessa incisa ad intaglio sulla faccia convessa: oroscopo zodiacale (segno del Toro)? Arte Romana, II–III sec. d.C. (Collezione privata). Superfici lavorate a molatura, fresatura e lucidatura. Intaglio con trapano a rotella. Lucidatura selettiva. *Caratteristiche micromorfoscopiche*: 1; 2; 3; 4; 6; C (idrossidi di ferro). Intenso degrado ed alterazione naturali."
>
> Context: "Ci sono pervenuti anelli di età romana completamente intagliati a tutto tondo nel cristallo di rocca: il loro uso, valutando la relativa fragilità del quarzo macrocristallino sottoposto ad insulti meccanici, poteva essere soprattutto funerario e magico nel contempo, considerati i significati simbolici del minerale di per se stesso immateriale, capace di far «vivere e vedere» al di là della struttura corporea e di perpetuare una rinascita dello spirito attraverso lo spazio ed il tempo."

The following details deserve attention: in the legend, Devoto classifies the gem as a Roman artifact datable to the 2nd/3rd c. CE that comes from a private collection and has suffered intense deterioration as well as alteration, both natural. This last detail, which seems to indicate that the object is an authentic piece of ancient art, is surprising because it is impossible to recognize any damage or deterioration either on the photograph or through autopsy. There is only a natural imperfection inside the lower right part of the gem, an area of reduced purity and transparency of the crystal (a so-called 'cloud', ital. *nuvola*). Maybe the words "intenso degrado ed alterazione naturali" refer to technical terminology in the field of mineralogy. In the context, Devoto points out the fragility of rock crystal. The fact that it was nevertheless em-

---

a fusion of the former institutes of geology and paleontology, mineralogy and petrography, as well as geochemestry.

15 DEVOTO 1995, here: 152. Cf. DEVOTO – MOLAYEM 1990: 91–94, on the mineralogical characteristics of rock crystal (also called clear quartz or hyaline quartz).

16 The papers of the ancient historian HANS GEORG GUNDEL (1912–1999) are in the archive of the University of Gießen (Germany). It remains to investigate if these papers contain notes on the gem from Palestrina. They do not contain any correspondences (we thank OLAF SCHNEIDER, Gießen, for this information).

ployed for artifacts such as rings indicates, according to Devoto, that it served magical and funerary (rather than practical) purposes.

We have made significant efforts to find and contact Devoto in order to learn more about the private collection to which our horoscope-gem belonged, and possibly about its ultimate provenance. Regrettably, these efforts were invain[17]. One of us (Mastrocinque) had known Devoto many years ago. At that time Devoto had Roman friends with small collections of gems, of which roughly 50% were forgeries. This led us to assume that the "private collection" mentioned in the legend quoted above was probably one of those Roman collections. This assumption was eventually confirmed[18].

For more than a decade, neither of the two holding institutions in Paris and Palestrina knew about the existence of a twin gem in the other place. The association of the two gems took place in late 2016, thanks to an incredibly lucky coincidence[19].

3. *Overall arrangement*

The basic concept of displaying the zodiacal circle (ζῳδιακὸς κύκλος) along a gem's outer edge and around a central motif of primary importance was well esta-

---

17 Neither Giuseppina Pisani Sartorio, the ex-director of the *Bollettino di numismatica*, nor Silvana Balbi De Caro, its current director, know the current whereabouts of Devoto, or if he is still alive. Barbara Tasser (Innsbruck), who worked with Devoto in the early 2000s in the course of her unpublished dissertation on a private collection of gems (see the summary at https://www.uibk.ac.at/klassische-archaeologie/Institut/Diplomarbeiten/TasserDiss.html), has nothing to contribute either, nor do his former colleagues at *La Sapienza* (we thank Michele Lustrino for this information).

18 The private collection was large, including some material of near-eastern provenance. The collector stopped his antiquarian business in Rome not much after the raids of 2002.

19 Curiously, this coincidence involved two sanctuaries of the goddess of Fortune: The Australian scholar Alan Cadwallader, an expert in Biblical Studies and the archaeology of ancient Colossae (south-west Turkey), was working on an intaglio from Colossae featuring a puzzling representation of the zodiac on the obverse and a reference to "Tyche Protogeneia of the Colossians" on the reverse. He contacted Daryn Lehoux (Canada) for help, who referred him to Stephan Heilen. Heilen sent Cadwallader an expertise attaching a scan of Gundel's discussion of the gem from Colossae (Gundel 1992: 129; cf. Ibid.: 248, no. 146). As chance has it, the scan was a double page, with page 128 featuring a photograph of a cast of the Parisian horoscope-gem reproduced from Neugebauer 1969: plate 94 (Gundel seems to have been unaware that the gem was in Paris). Cadwallader happened to pay attention to the gem on p. 128, noticed that he had seen an almost identical gem while visiting the museum attached to the sanctuary of Fortuna Primigenia at Palestrina in the summer of 2016, and informed Heilen of this observation, attaching a picture that he had taken of the gem in its showcase. Heilen then started investigating for the present article.

blished before the creation of our two horoscope-gems[20]. It depended on a relatively recent religious and cosmological concept according to which certain gods were rulers of the whole cosmos, and consequently these gods and also some emperors were depicted as holding the cosmic sphere, making the zodiac turn, or standing on it. The more complex iconography of *two* concentric rings with zodiacal and/or planetary imagery around a central motif is, to our knowledge, not securely attested on gems before our horoscope-gems. We find it, however, on two coins of the well-known Alexandrian coin series that was issued in 144/5 CE to commemorate the beginning, in the summer of 139 CE, of a new Sothic cycle of 1460 years and, by implication, of a new age under the emperor Antoninus Pius[21]. This coin series comprises a total of sixteen different coins. Twelve of them are each devoted to a single zodiacal sign and its presiding planetary deity[22]. All of the remaining four feature one or two deities surrounded by a zodiac,[23] with important differences: One of them features two concentric zodiacs surrounding the central busts of the cosmocrators Sarapis and Isis (see fig. 3a)[24]; another one features a zodiac surrounding a ring of seven planetary busts around the central bust of Sarapis (see fig. 3b); the third one

20 See the gems in GUNDEL 1992: 246–253, nos. 147, 152/1, 160/1 (early 1st c. CE!), 161, 162, 167. In addition, see the gem in MASTROCINQUE 2003–2007, II: 175, no. Ve 3, with a zodiac ring around a central bust of Sarapis-Helios (2nd c. CE).

21 On this coin series, see GUNDEL 1992: 122–123, as well as the catalogue IBID.: 244–245, nos. 128–130, and 279, no. 254. For a preliminary catalogue of a number of extant examples of this and other series of drachmas issued by Antoninus Pius between 140 and 161 A.D., see CARLSON 1974–1975, 25. Regrettably, Carlson's plan of publishing a list of all known extant specimens of the zodiac series and a catalogue of all its dies, obverse and reverse (cf. IBID.: 24), never came true (he died in 2002). We did not see SAYLES 1998: 97–100 ("The Sothic Cycle and Zodiac Coins").

22 These twelve are magnificently reproduced in JONES 2016: 114–115, fig. IV-11c–n. Average quality reproductions of them are available in GUNDEL 1992: 277, fig. 1–12. See also the photographs in GEISSEN 1978: 258–265, nos. 1492–1506 (missing: ARI, GEM, LIB, PSC). Note that the Alexandrian coin series is the only one ever minted in antiquity that comprises one coin for every single zodiacal sign. There is only one comparable coin series in the history of numismatics, namely that of the twelve gold zodiac mohurs of Mughal emperor Jahangir (1605–1627); see LEHR 1970: 4, n. 3.

23 See DATTARI 1901, II: tav. XXVI, nos. 2982–2984 (cf. SAVIO 2007: plate 156, nos. 2982–2984), CARLSON 1974–1975: 25, GUNDEL 1992: 121, fig. 55c–e, EVANS 2004: 33, fig. A–C.

24 Cf. HORNBOSTEL 1973: 147: "Gelegentlich werden die Büsten beider Götter von Tierkreiszeichen umrahmt, um sie als Gestirnsgottheiten und als Sarapis Kosmokrator bzw. Isis Kosmokrateira zu kennzeichnen" (with reference, IBID.: n. 1, to the Alexandrian coin series and to a Sarapis hymn which calls this god 'lord of the celestial spheres, of the seven movable spheres, and of the sphere of the fixed stars that surrounds them'.

Fig. 3a: Alexandrian coin featuring Sarapis and Isis (Photo Mastrocinque. This coin is also reproduced in Curtis 1955, plate XXIV, no. 7, Gundel – Gundel 1966, plate VI, no. 9, and Jones 2016, 114, fig. IV-11a).

Fig. 3b: Alexandrian coin featuring Sarapis (Drawing reproduced from Cumont 1919, 1049 (fig. 7588). Cf. Gundel 1992, 121, fig. 55c, and 244, no. 128. Photographs of this coin are available in Dattari 1901, II, tav. XXVI, no. 2982 (cf. Savio 2007, plate 156, no. 2982), Hornbostel 1973, plate XLIV, no. 78, and Geissen 1978, 258–259, no. 1491.)

features a single zodiac around busts of Helios and Selene, the fourth one a single zodiac surrounding a circle of five planets around the central busts of Helios and Selene[25]. The first three of these four coins (and presumably also the fourth, which we did not see) unanimously feature the twelve zodiacal signs in counterclockwise order, in compliance with their appearance in the sky[26]. Since coins circulate through many people's hands and have, therefore, a higher potential of publicizing images than any other ancient form of art, they are likely to inspire later artists. As a matter of fact, one gem from Cairo matches the iconography of the Alexandrian Sarapis-coin described above so closely that it is almost certainly a free copy of it[27]. Gundel

25 We owe the information on this last type, which we did not see, to Carlson 1974–1975: 25, who reports to know two specimens, both in (unspecified) museums. See above, n. 21.

26 The default assumption in ancient astronomy and astrology is that the earthly (= Mediterranean) observer of the sky is facing south.

27 For a reproduction of this gem, which was part of the collection of the Swiss merchant Andreas Bircher (1839–1925; the gem's current whereabouts are unknown), see Pagenstecher 1923: 120, fig. 128 (reproduced in Hornbostel 1973: plate XLIV, no. 79, and Gundel 1992: 126, fig. 56b). E. Zwierlein-Diehl kindly informs me (e-mail 16.7.2017), based on Pagenstecher's drawing, that

emphasizes that when studying ancient gems one should always keep their potential dependence from coins (and the resulting *terminus post quem*) in mind[28]. We shall therefore pay attention to a wide variety of ancient representations of the zodiac, but especially to the iconography of the Alexandrian coin series[29].

this gem may be ancient (a secure assessment of its date would require a photograph), and that the drawing probably represents the gem itself, not a cast. GUNDEL 1992: 246–248, no. 144, refers to a very similar gem, an amethyst in London, on which see WALTERS 1926: 180, no. 1668, with plate XXII, 48, and RICHTER 1971: no. 202 (with fig.). For an online photograph, see https://www.britishmuseum.org/research/collection_online/search.aspx (enter search argument: "gem 1668"). Note that Gundel's catalogue entry (246, no. 144) is for the London gem, but his figure (126, fig. 56b) misleadingly reproduces the Bircher gem. With respect to both, GUNDEL writes (1992: 127): "In jedem Fall liegt auf diesen Gemmen eine freie Kopie der Prägung aus Alexandria vor und damit ein Abhängigkeitsverhältnis, das bei Gemmen stets naheliegend ist und zugleich eine relative chronologische Einordnung als terminus post quem ermöglicht". EVANS' opinion to the contrary (2004: 24), namely that the Alexandrian coin series was modelled on (now lost) gems, seems implausible. Gundel's remarks on the two gems call for correction: according to the authoritative judgement of E. ZWIERLEIN-DIEHL (e-mail 7.7.2017) the London amethyst is not, as Gundel thought, a late Roman artifact but modern because of the front-hair combed back, the atypical form of the bust, and its draping with two folds of the cloak. Moreover, she agrees with two observations of mine, namely that the two gems cannot be identical, as GUNDEL (248) was inclined to believe (suffice it to point out just one important iconographic difference: the Bircher gem features a star above the head of Sarapis which is missing from the London gem), and that the London gem is likely to be a copy of a cast of the Bircher gem whose unique iconography it reproduces quite (though not absolutely) faithfully, including the important motivic mistake that Leo is erroneously placed between Libra and Scorpio. To sum up, the Bircher gem is likely to be both ancient and a copy of the Sarapis-coin, while the London amethyst is modern and likely to be a copy of a cast of the Bircher gem.

28 See the previous note. According to E. ZWIERLEIN-DIEHL (e-mail 7.7.2017), truly ancient gems that constitute copies of coins are more rare than Gundel thought. Hence, we shall remember his advice with due moderation.

29 Moreover, two coins issued respectively in Perinthos (on the Northern shore of the Marmara sea) and Aigeai (Cilicia), depicting the zodiac, also deserve attention, although the Parisian gem may already have existed when these coins (especially the one from Aigeai) were issued. The former one (from Perinthos) was issued under Severus Alexander (222–235 CE), probably in 230 CE; it features, on the reverse, a zodiac with clockwise arrangement of the twelve signs around a large central space with Zeus enthroned and accompanying imagery (see GUNDEL 1992: 245, no. 136, and p. 241, fig.). The latter was issued under Valerianus (253–260 CE, probably in 255 CE); it features, on the reverse, two concentric rings around a central bust of Medusa, the outer one containing the twelve zodiac signs in counterclockwise order starting from the top, the inner one containing a brief Greek inscription in clockwise order starting from the bottom. Both rings share the same dividing lines that radiate from the central circular space without reaching into it. See GUNDEL 1992: 246, no. 139 (without fig.). Note that the coin from Aigeai closely resembles a Parisian gem (an emerald paste) which ZWIERLEIN-DIEHL 1986: 250–251, no. 752 (with fig. on plate 130) dates to the 2nd

In the following pages, assertions regarding the Parisian gem refer not to the gem itself but to its imprint (see above, fig. 1). That the imprint, not the gem itself, contains the picture that the observer is meant to watch is clear for various reasons, the most obvious one being that the mirrored Greek number letters on the gem itself are illegible and meaningless. Further reasons will be adduced in the following.

The arrangement of the planetary busts and the zodiacal signs on both gems is unrelated to the true configuration of the celestial bodies in the cosmos (or visualizations thereof on a *pinax* or in a circular diagram)[30]. Instead, the arrangement is determined by the standard sequence in which astronomical data are enumerated in the majority of Greek horoscopes: Sun – Moon – Saturn – Jupiter – Mars – Venus – Mercury – ascendant[31]. By placing the Sun's data in the right upper section the artist allowed the observer to find the two luminaries (the so-called 'cosmocrators')[32], and *only* these, above the central bull in the highest part of the imagery which is presumably the most dignified part of the circle of planetary busts. This arrangement implies that an ideal reading of the pictures on the gems begins in the right upper section (Sun in 1° CAN) and procedes counterclockwise all the way to the right middle section (Mercury in 21° CAN), and then horizontally into the central space (ASC = 11° TAU). That the ideal reading begins with the Sun's data is further indicated by the fact that only here we find the Greek letter M for μοῖρα ('degree') preceding the numerical value A ('1'), while μοῖρα is, of course, to be understood in the following seven cases, too[33]. The counterclockwise motion starting from the Sun's section is variously emphasized:

---

c. CE, but cf. Gundel 1992: 130 and 250–251, no. 161 (with fig.), who thinks that the coin from Aigeai, which Zwierlein-Diehl does not mention, may have inspired this gem as well as two similar gems in Berlin and in the Netherlands, with the consequence that all three gems would post-date the coin.

30 On the horoscope board (*pinax*) and diagrams used by ancient astrologers see Heilen 2015: 526 and 578, as well as Greenbaum – Ross 2015. On the most important extant horoscope boards, those from Grand (France), see Abry 1993.

31 Cf. Neugebauer – van Hoesen 1959: 164. Jones 1999, I: 250. Heilen 2015: 589.

32 For details and astrological references, see Heilen 2015: 734–735.

33 Cf. the horoscope-ring from the 4th c. CE that will be described below (n. 91): on that ring each of the eight longitudes is indicated by a numeral that is expressed in Greek letters and preceded by the abbreviation M° for μοῖρα. As a consequence, the resulting expressions comprise between two and three letters each (see the transcription in Neugebauer – van Hoesen 1964: 69). Groups of three letters would not look nice on our gems because, unlike couples of two letters, they cannot be split into even parts. It is a lucky coincidence that the sun's longitude on our gems requires only one number letter, thus leaving a free space for the abbreviation M. As a result, only Venus happens to be left with a single number letter (i.e., with a small aesthetic imperfection).

1. All seven planetary busts are represented in profile facing left.

2. The bull, facing left, is lowering its head.

3. The bull's left hoof and its tail are represented at the extreme points of a counterclockwise motion out of their natural positions.

One may object that it would have been more natural to choose a clockwise arrangement of the pictures[34], especially in view of the Greek number letters accompanying each bust which, like any Greek text, require a reading direction from left to right. However, the artist had several good reasons to disregard this argument:

1. He may have been inspired by the last three Alexandrian coins mentioned above which unanimously feature their zodiacs in counterclockwise order, the zodiacal signs separated by dividing lines, and the central deities facing left, as on our twin gems. Moreover, Aries, the first sign of the zodiac, is placed on top of all three coins, comparable to the position of Helios, with whom our list of planetary data begins, at the top of our gems[35].

2. The pose of the central bull is not an ad hoc invention but in compliance with a strong tradition that reaches back several centuries before the creation of both gems. We find the celestial bull[36] in exactly the same attitude (i.e., facing left, lowering its head, pawing the ground with its left hoof, whipping its tail above its back) on manifold monuments from various parts of the (especially Eastern) Mediterranean world. It will suffice to mention a marble frieze from Pergamum (c. 150 BCE)[37], the painted ceilings of the two rooms of the tomb of Petosiris in the Dakhla oasis in the deep south of Egypt (2nd c. CE)[38], the famous mosaic from Bir Chana (Zaghouan, Tunisia, 2nd c. CE)[39], and a gem cut into red carnelian from the imperial period[40]. Moreover, we find virtually the same pose but the right (not left) hoof pawing the ground on

34 As on the coin from Perinthos; see above, n. 29.

35 Note that the astrological exaltation of the Sun is in Aries.

36 The following examples clearly refer not to just any bull, but to the constellation Taurus.

37 See GUNDEL 1992: 211, and 210, no. 22.

38 NEUGEBAUER et al. 1982: fig. 38–39 (room I) and 40–41 (room II; color detail of the bull: fig. 44a). Cf. GUNDEL 1992: 119, fig. 54 (correct the catalogue number IBID.: from "121" to "119"), and 243, no. 119. For the date of this tomb, see OSING 1982: 71.

39 See GUNDEL 1992: 144, fig. 62, and 266, no. 210.

40 See GUNDEL 1992: 267, no. 216,1, and 268, no. 216, as well as HEILEN 2009: 282–284 (b/w-picture IBID.: 282).

the so-called altar of Gabii (c. 130 CE)[41] and on the Alexandrian Taurus-coin[42]. We know only three representations with all details mirrored, i.e. the bull facing right, lowering its head, pawing the ground and whipping its tail above its back: the square zodiac of the painted ceiling of the temple of Hathor, Dendera (c. 20 CE)[43], a gem of the early 2nd c. CE[44], and the Perinthian coin from the early 3rd c. CE[45]. The more copiously attested pose facing left is in compliance with the appearance of the constellation in the sky at night. Therefore the artist who devised the iconographical program on our two gems did well to have the celestial bull as well as the divine busts face left, not right.

a **b**

Fig. 4a–b: The Alexandrian coins featuring Taurus with Venus (left, a) and Cancer with Selene (right, b) (photos Mastrocinque)

41 See Gundel 1992: 68, fig. 33, and 213, no. 27.

42 See fig. 4a. above as well as Gundel 1992: 277, no. 254 (coin 2), and 279, no. 254, and Jones 2016: 114, fig. IV-11m. See also the identical pose of the celestial bull on the Sarapis-coin from the same coin series on fig. 3b above.

43 See Gundel 1992: 86, fig. 43b, and 208, no. 12.

44 See Zwierlein-Diehl 1986: 276, no. 848 (with fig. on plate 147), Gundel 1992: 250–252, no. 162 (with fig.), Zwierlein-Diehl 1995: 564, Ead. 2007: Taf. 158, fig. 719, and Boardman 2009: 291, no. 704 (with figs.). Nota bene: On the gem itself the bull faces left, on the cast (which matters) right.

45 See above, n. 29.

3. One additional advantage becomes clear if we continue the clockwise motion or reading direction (as described above) through the bull's body all the way to the left edge of each gem: it then merges with the horizontal line that separates the pictures of Saturn in Virgo (above) from Jupiter in Libra (below). Since each of the twin gems features seven pairs of planetary busts and zodiacal signs and seven is an odd number, there is and can be only one horizontal line if one wishes to divide the entire picture into seven sections of roughly equal extension. In principle, this one and only horizontal line could equally well be placed behind the bull's body, but having it in front of the animal's head, in the left part of each gem, nicely reminds the observer of the horizon whose Eastern (= left)[46] intersection with the ecliptic is the ascendant whose longitude the central bull represents.

4. Even if our gems do not feature a usual chart with its complete zodiac and orientation to the four cardines, ancient astrologers and their clients were used to watching such charts that were either designed by hand on a writing support or visualized with planetary markers on a horoscope board[47]. In both cases, the natural sequence of the twelve zodiacal signs as well as that of the twelve places is counterclockwise.

These considerations make the choice of a counterclockwise reading direction seem thoroughly plausible.

One may wonder why the artist decided to place the planetary busts on the outer rim and the zodiacal signs below, on the inner rim, while their natural places in the cosmos are reversed and do appear in that reversed order on the Alexandrian Sarapis-coin[48]. Nevertheless, there are important parallels to the arrangement chosen by our artist, such as the Kassel horoscope-gem[49] and the twelve Alexandrian coins devoted to single zodiacal signs[50]. They indicate the existence of an ancient artistic tradition, namely that whenever a zodiacal sign was paired with a planetary deity (as is the case on our horoscope-gems), the latter would be represented above the former, because it is astrologically presiding 'over' it. Moreover, if the planetary busts on our gems had been placed on the inner ring, the central bull would be strangely separated from the other zodiacal signs.

---

46 See above, n. 26.

47 See above, n. 30.

48 See fig. 3b above.

49 See above, n. 2.

50 See GUNDEL 1992: 277, fig. 1–12, and JONES 2016: 114–115, fig. IV-11c–n.

The representation of the ascendant at the center of the composition, which indicates its being different from and more important than the surrounding elements, makes sense because the ascendant is the most important single parameter of ancient horoscopes and the only parameter that is not related to a material (planetary) body. If our gems were inspired by the Alexandrian Sarapis-coin, the ascending bull has taken over the dignified central place that was occupied by Sarapis on the coin[51].

In sum, the inconography of our two gems is well-thought-out and consistent with preexisting artistic (especially numismatic) tradition.

4. *Differences in detail*

The two most important differences between the two gems regard the Greek number letters that indicate the respective degrees of the zodiacal signs. One of them attracts the observer's attention immediately: the letters IA are placed together above the bull's back on the Parisian gem while that from Palestrina has the bull standing between them. The latter arrangement has two advantages: it conforms with the split arrangement of the number letters around the planetary busts and it makes better use of the available space (the letters are neither squeezed above the bull's back nor is a large space behind the animal left blank).

The other difference is less prominent but more important: the number letters for Mercury are KA on the gem from Paris but BA on that from Palestrina. For two reasons, KA must be the correct value: the sequence BA is numerically impossible, and KA (21°) is astronomically accurate[52]. This has important consequences:

1. It is almost impossible to conceive of the Parisian gem as being a copy of the Palestrina gem because that would require the extremely unlikely assumption that the artist who cut the Parisian gem noted the numerical mistake in BA and conjectured correctly that B must be emended to K.

2. The opposite scenario is possible, even likely: only if the gem from Palestrina is (either directly or indirectly) a copy of the gem from Paris, we have a plausible explanation for the corruption of K to B. While the shapes of K and B are unlikely to be confused in regular writing (on papyrus, for instance), the intaglio technique forces the artists to express curved shapes by a succession of linear strokes. Thus, the letters K and B resemble each other on both gems[53]. It is now revealing to compare

51 See fig. 3b above.

52 See Neugebauer 1969: 362, and the appendix below.

53 See the data regarding Saturn, Venus, and Mercury in fig. 1–2. See also the rectangular shape of the Theta (Mars) and the zig-zag-shape of Mercury's caduceus.

the two K that precede Saturn's and Mercury's busts on the Parisian gem, especially the upper ends of the vertical strokes. The former K (Saturn) has relatively small and thin serifs while the latter K (Mercury) has thicker and longer serifs. Already the engraver of the Parisian gem seems to have realized that he was about to create an ambiguous letter preceding the bust of Mercury. Therefore he seems to have prolongued the oblique strokes so as to reach above and below the horizontal serifs of the vertical stroke. Moreover, he seems to have cut the serifs of the oblique strokes not horizontally, as those of most other letters including the K of Saturn, but vertically.[54] While this should be enough to suggest a K, especially if one compares the letter in question with the unequivocable B preceding the adjacent bust of Venus, an erroneous reading of the letter in question is still possible and seems to have occurred in the process of copying the data onto the Palestrina gem. Instead, the K preceding Saturn's bust on the Parisian gem, which is not at all ambiguous, was copied correctly as a K. To sum up this point: The mistake on the Palestrina gem can only be explained plausibly if we assume that the artist derived the numerical data from a source that presented the number letters composed of linear strokes and presented two different shapes of K in the sections devoted to Mercury and Saturn: in brief, a source like the Parisian gem.

In order to understand the relationship between the two gems more thoroughly, it will be helpful to compare their pictorial details systematically[55]. This comparison will reveal time and again that the Palestrina gem is cut more finely, but also that the two gems exhibit motivic discrepancies. Details of uncertain interpretation in either gem will be tentatively identified with a view to the intaglio technique.

	Parisian Gem	Palestrina Gem
Helios	His headgear is fittingly adorned with four rays. The only distinctive feature of his face is the nose.	His headgear is decorated with four elements that look more like clamps than rays[56]. Details that are missing or hardly discernible in the Parisian gem but clearly discernible here: eye, mouth, chin, long hair at the neck.

54 The only other letter with vertical serifs is Jupiter's Z.

55 I did this using two different photographs of the Palestrina gem and both the photograph (see above, n. 1) and the cast (see above, fig. 1) of the Parisian gem. I am very grateful to E. ZWIERLEIN-DIEHL who clarified more than a dozen doubtful details.

56 See, however, a very similar head of Helios on the Taurus-gem described in n. 78 below.

Selene	Her headgear is adorned with a lunar crescent (tops pointing upwards)[57]. The hair knot resembles that of Venus but was cut with a thinner flat-bouterolle[58].	Her headgear is not adorned with anything, and the hair knot has withered into a tiny vertical pin.
Saturn	His head is covered by the typical cloak, with folds hanging down so as to cover the left ear, which is turned to the spectator, and the neck. Behind his head the sickle, turned away from his head, with an additional sharp point (*mucro*) pointing upwards[59].	No coat but diagonally sketched hair and two single locks in the neck. Behind his head a thin long object with a bulge of unclear meaning at the upper end.
Jupiter	Beard.	Beard.
	Thick neck hair (sketched); hint of a back located eye-brow.	Star-like ornament on the front-hair which is alien to ancient iconography[60].
Mars	Attic helmet with large bush.	Helmet similar to a Corinthian one, but the shape is not ancient.
Venus	Hair knot; no other distinctive elements.	Same motif, but Venus is, compared to Mercury, poorly cut.
Mercury	Winged headgear; behind the head: caduceus whose lower right part (near the lower left part of the A) is the sketch of a winglet which has, due to lack of space, no pendant on the left side.	Same motifs, but both the bust and the caduceus are more finely worked; its upper ends are unusually long, with a double cut on the right.

57 Compare the horns of the central bull.

58 This cutting-tool (in German: "Flachperlzeiger") was called "half-round tool" in some older English publications.

59 Cf. Zwierlein-Diehl 2010: 258: "Bei Kopf oder Büste des Gottes hat das Attribut gelegentlich die Form einer gebogenen Schneide mit zusätzlicher, dolchartiger Spitze, ähnlich einer Harpune [*with reference to the Parisian gem and two other gems*]. Hierbei scheint es sich um eine künstlerische Darstellungsform des Gerätes zu handeln. Eine Spitze (mucro) hat das von Columella 4,25 beschriebene Winzermesser (falx vinitoria); an erhaltenen falces kommt sie nicht vor." For one more (now lost) gem with the sword-sickle as an attribute of Saturn see Mastrocinque 2003–2007, I: 386, no. 355. The same attribute appears on coins, too: see e.g. the denarius issued by Nonius Sufenas in Rome in 59 BCE (Crawford 1974, I: 445–446, no. 421/1, and II pl. LI).

60 One finds stars *above* the head, but not in the cases of Zeus and Sarapis.

Cancer	In each of the three cases (Sun, Mercury, Venus), the lower limbs of the six legs are all turned slightly backwards[61] and the back is bisected by a line that runs from the front to the rear end, similar to a scarab[62].	In each of the three cases, the lower limbs of the six legs are all turned slightly forward; the back is not bisected; a small narrow beak or proboscis which seems alien to a crab's typical morphology emerges from the fronthead (this is best visible in Venus' crab, less in Mercury's, not at all in the Sun's)[63].
Libra	In both cases (Moon and Jupiter) a human figure (the *libripens*) is holding a beam balance, which has two vertical elements, in his left and nothing in his right hand; standing leg: left.	In both cases (1: Selene, 2: Jupiter) a human figure is holding a beam balance, which has three vertical elements (this seems unique and senseless)[64], either in his left hand (case 1) or in his right[65] (case 2); in both cases the other hand is holding an object, too[66]; this is either (case 1, right hand) hard to identify or (case 2, left hand) an ear of grain (?); standing leg: right; case 1: feet naturally spread; case 2: *libripens* in motion and headgear different from case 1.
Virgo	Poorly cut human figure with a *polos*[67] represented by one vertical and one horizontal strokes[68]; she is holding	Human figure standing upright, wearing an unusually large headgear (or is it just a very thick head?), leaning with

61 The celestial crab usually has eight legs, rarely six (GUNDEL 1992: 70). We find the same motif as here (six legs turned backwards), for example, on the Alexandrian Cancer-coin (see above, fig. 4b) and on the mosaic from Bir Chana (see above, n. 39).

62 For a similar representation, see GUNDEL 1992: 86, fig. 43, and 208, no. 12 (from Dendera, c. 20 CE). Hence, the assertion IBID.: 70 that such representations of the crab are not attested in the ancient tradition calls for correction.

63 For a similar representation with a real head see JONES 2016: 57, fig. II-10 (painted cover of an Egyptian coffin, early 2nd c. CE). The Alexandrian Cancer-coin features a crab with six small protrusions from the fronthead (see above, fig. 4b, and esp. JONES 2016: 115, fig. IV-11c).

64 See GUNDEL 1992: 71f. In antiquity, only standing balances have a third vertical element, namely the central pillar that carries the horizontal beam. We found such standing balances on a few Egyptian representations of Libra: see JONES 2016: 57, fig. II-10 (as above, n. 63); GUNDEL 1992: 90, fig. 45, and 218, no. 39 (mummy coffin, c. 100 CE). However, the ceilings of the tombs of Petubastis and Petosiris (and many other monuments found on Egyptian ground) feature human figures holding portable scales; see NEUGEBAUER et al. 1982: fig. 36–37 and 40–41.

65 In favor of the right hand as being the more usual motif, see GUNDEL 1992: 72.

66 GUNDEL 1992: 72 (7c), does not mention any object in the second hand of balance-holders.

67 A high cylindrical hair-dress (or crown, because it is open at the top), worn by some ancient goddesses.

68 The vertical stroke juts above the horizontal one, which represents the upper edge of the polos, because the engraver has not bothered to change his cutting tool.

	an upright very long thin object with her left hand (the arm is imperfect: The engraver has first cut an oblique shoulder and then attached the upper arm too high up); her right hand is holding a second, shorter thin object, whose top is pointing to the ground; probably Demeter with a long torch and ear(s) of grain[69], even if the tops of both objects are not enlarged but pointed[70]; certainly not Athena[71].	her raised left arm on a very long thin object, holding with her right hand a large object of irregular shape that is clearly different from the Parisian Virgo and difficult to interpret (a pair of scales seen from the side?)[72].
Gemini	Two human figures of indistinct sex in quarter front view; both arms of the left twin and the left arm of the right twin are visibile; both heads lack distinctive features.	Two human figures in quarter front view, heads in profile, no head-gears, indication of the hair's edge in 'Cap-with-rim-Style'[73], representation of the noses and mouths or chins in 'Chin-mouth-nose Style'[74]; only the outer arms are visible (one left, one right); the left, visible hand of the right twin is holding a sword (one sees the cross-

69 Demeter's attributes are clearly discernible, for instance, on the Alexandrian Virgo-coin (Jones 2016: 115, fig. IV-11e). The polos (see n. 67) is not typical of Demeter; it may have been transferred from Tyche/Fortuna.

70 The long thin vertical line has been cut (near the upper end) over a previously cut very short cross-line, so as to resemble an extremely long cross with an extremely short cross-beam. This could be meant to represent a torch.

71 One would expect to find numerous ancient texts that associate Virgo with the virgin goddess Athena, but there is not a single clear testimony. The only tentative association is Procl., *in Tim*. 24D p. I 141,3 Diehl where the philosopher proposes four alternative celestial abodes for Athena, either Aries or Virgo or one of the northern polar stars or the Sun. See Hübner 2017: 14–15, and Gundel 1949: col. 1945–1950, who mentions more than twenty mythical and religious associations of the constellation Virgo (on Athena and the Proclus passage see Ibid.: 1947: 19–20; on Virgo being Demeter see Ibid.: col. 1949,9–25). Gundel 1992: 71, mentions, among the possible attributes of the Virgin, a sword but not a lance.

72 Gundel 1992: 71, associates scales (as an attribute of the Virgin, cf. Ibid.: 72, 7c) with Dike.

73 This term has been coined by Maaskant-Kleibrink 1978: 302, because such figures look as if they were wearing a tightly fitting cap.

74 This term has been coined by Maaskant-Kleibrink 1978: 321.

		guard right beneath the hand)[75] whose top is pointing to the ground; the feet of the right twin form a right angle, the left foot of the other twin juts into the neighboring section of Libra, while his right foot is unnaturally turned back and upwards, as if it were a raised lower leg.
Taurus	Head and neck too long and thin, unnaturally stretching beyond the right standing foreleg; a thick stroke which runs from the bull's throat to the bent knee of its left foreleg represents the typical bovine dewlap. The bull is not standing on the frame of the central space but on a thin horizontal line representing the ground[77]. This line seems to be slightly turned upwards under the bull's neck and head. Comparison with an astrological gem in Kassel reveals that the line is probably meant to represent a heavily bent ear of grain, or grass[78].	The bull is cut more finely, featuring the following details that are absent from the Parisian gem: ear, eye with eyebrow, mane, erect penis[76], oversized joints of the hind limbs (both hock and fetlock). The Parisian gem's cutting mistake regarding the foreleg is absent. Moreover, the bull on the Palestrina gem is not standing on a ground line but right on the frame of the central space. A meaningless stroke runs from under the right foreleg's hoof, and out of the frame, obliquely up until under the bull's muzzle. This is what remains of the heavily bent ear of grain on the Parisian gem. Since this upwards bent line looks identical on the cast of the Parisian gem and on the Palestrina gem, the artist of the latter may have worked from a cast of the former.

75 GUNDEL 1992: 70, does not mention a sword as an attribute of the twins. He only mentions the mace as identifying either Heracles and Apollo or Amphion and Zethus. However, if our twin were holding a mace, we would expect it to be longer and (due to its weight) the top to be placed on the ground. Less decisive, but still worth consideration, is the absence of the lion's skin (Heracles) and the lyre (Apollo). For all these attributes (mace, lion's skin, lyre) see ex. gr. the Alexandrian Gemini-coin of 144/5 CE in JONES 2016: 114, fig. IV-11n.

76 Cf. the Alexandrian Taurus-coin in GUNDEL 1992: 279, no. 254, coin 2. This coin is from the same emission as the one quoted in n. 77 (it also has the line on which the bull is standing), but the penis is visible only on Gundel's picture.

77 This line is not visible in the cast but in the real gem using the magnifying glass (see above, n. 1). We find the same thin line on the Alexandrian Taurus-coin (see above, fig. 4a and n. 42) which closely resembles our gems in all aspects of the bull's pose. We further find it on the gem described in the next footnote.

78 See ZAZOFF 1970: 247, no. 194 (with fig. in vol. 2, plate 113), and ZWIERLEIN-DIEHL 1986: 232,

The comparison shows that the two engravers are certainly not identical. The engraver of the Palestrina gem tends to enrich the divine busts and the zodiacal signs with details that are absent from the Parisian gem. Several of his motivic details and innovations raise doubts as to whether he understood the iconography. For example, Helios, Selene and especially Saturn lack their canonical attributes, Libra's portable beam balances feature a nonsensical third vertical stroke, and Virgo is holding a strange object in her right hand.

5. *The purpose of the Parisian gem*

This section requires a preliminary explanation of why the planetary configuration on our gems is almost certainly a nativity (i.e., a birth-horoscope): the ascendant (11° TAU) dates it to about 1:45 a.m.[79] While this night time suits a birth, all other events in the human sphere for which people might cast horoscopes (weddings, coronations, foundations of buildings or cities, etc.) would, especially in the ancient world, take place during the day. It is equally unlikely that the astronomical data are those of a cosmic event: there was no spectacular short-time event such as a lunar eclipse during the night in question[80], and long-time events such as appearances of comets are incompatible with the chronological precision of our ascendant[81]. Besides, it was standard practice in ancient astrology to attach negative significations to eclipses and comets. Theoretically, the time encoded on our gems could be meant to be the precise moment of the summer solstice, but that is astronomically unlikely (see the appendix below), and the large body of extant astrological literature does not contain the slightest clue that any ancient individual would have cast the horoscope of a solstice or cared about it. Hence, the only plausible explanation is that we are dealing with a nativity.

---

no. 656 (with fig. on plate 116): the bull is here facing left, in a calmly walking pose, with the left hoof touching the ground right where two ears of grain (symbols of fertility) grow out of it. These ears of grain are slightly (far less than on the Parisian gem) bent to the left; their tops touch the bull's muzzle. The astrological meaning of this gem is indicated by a bust of Helios above the bull's horns and a lunar crescent surrounded by seven stars (the Pleiades, paranatellon of Taurus; cf. Manil., V 140–142) above the bull's back. The early modern drawing of this gem reproduced in Mastrocinque 2003–2007, I: 383, no. 349, is, compared to the original, somewhat inaccurate with respect to the ears of grain.

79 See the appendix below.

80 This is obvious from the square aspect between the luminaries (sun in Cancer, moon in Libra).

81 Note that one ascensional degree corresponds to about four minutes of time.

Now to the Parisian gem. None of the publications on this artifact mentions explicitly that the intaglio was cut as a mirror image, nor does any of them raise the question what purpose this technique may have served[82]. Since the 'true' image of the Parisian gem becomes visible and legible only in a mirror or in the imprint left by the gem in a malleable substance such as wax or plaster, this gem must (as so many other ancient gems, too)[83] have been created to serve as a seal or signet. Admittedly, there is – to the best of our knowledge – no archaeological or literary evidence that any ancient individual ever made such use of any kind of horoscope (birth, coronation, or other). Moreover, that might have been unwise: a complete nativity allowed other people to know (or to believe they knew) the native's destiny, especially how long he (or, less likely, she) would live, how mighty he would be, and further important pieces of information. If other individuals who interacted with the native as his subjects, slaves, friends, partners, clients or else knew such vital data, their behaviour might have been conditioned by them, possibly to the native's detriment. One may think of Septimius Severus who had his birth chart painted under the ceiling(s) of the courtroom(s) of his palace, but with an ambiguous representation of the ascendant, probably in order to frustrate would-be plotters or to thwart attempts at predicting his death[84]. Hübner emphasizes, based on a review of the relevant literary sources, that ancient individuals (unlike those of the Renaissance) generally avoided revealing their nativities *in toto* and tended to practice, in private as well as in public, an ambivalent mix of exhibition and withholding of their horoscopic data[85]. On the other hand, there is the unusual case of Augustus who published his (now lost) horoscope, and the sources suggest that he did so twice, first in his youth, possibly to prove that he was destined to rule the Roman empire, and a second time in his old age by means

---

82 See above, n. 1. NEUGEBAUER 1969: 361, states that he is reproducing "a cast of the gem" that he had obtained from Seyrig (cf. IBID.: plate 94, legend: "Impression of intaglio, reversed"). GUNDEL 1992: 128, states that his fig. 57 shows an enlarged "Abdruck". Both of them do not comment on the implicit information that the picture is mirrored.

83 Cf. ZWIERLEIN-DIEHL 2007: 4: "'Intagli', oder mit deutscher Pluralform 'Intaglien', dienten meist als Siegel, daher sind ihre Bilder auf den Abdruck hin geschnitten, d. h. dort erscheinen sie seitenrichtig. Eine Ausnahme bilden Intaglien, die nicht zum Siegeln bestimmt waren, wie die magischen Amulette."

84 Cass. Dio, LXXVII (LXXVI) 11.1: ἐς τὰς ὀροφὰς αὐτοὺς τῶν οἴκων τῶν ἐν τῷ παλατίῳ, ἐν οἷς ἐδίκαζεν, ἐνέγραψεν, ὥστε πᾶσι, πλὴν τοῦ μορίου τοῦ τὴν ὥραν, ὥς φασιν, ἐπισκοπήσαντος ὅτε ἐς τὸ φῶς ἐξῄει, ὁρᾶσθαι· τοῦτο γὰρ οὐ τὸ αὐτὸ ἑκατέρωθι ἐνετύπωσεν. See CRAMER 1954: 211, but cf. HÜBNER 2011: 48–50, on the difficulty of interpretating Dio's text.

85 HÜBNER 2011: esp. 51.

of an edict, probably in order to dispel rumours that his end was near[86]. In view of such diverse attitudes, it would be rash to exclude *a priori* the use of a horoscope on a seal or signet.

In this context, a similar object deserves attention: a golden seal ring from Syria[87]. Eight of the nine sections of this ring are engraved in Greek letters with the astronomical data of a planetary alignment that has been dated to 17 August 327 CE, at about 4 a.m.[88]. On the ninth side of the ring a seal is mounted, featuring a bust of Asclepius with his rod and the mirrored Greek word ΥΓΙΑ ('health'). This ring is likely to have belonged to a physician who used his own nativity to adorn the seal ring, an object that served to assert his identity[89]. Even if the respective horoscopes have different functions on this seal ring and on our Parisian gem (the horoscope only adorns the ring without being, as in the gem's case, publicized through the seal's imprint), the geographical, chronological, and astrological proximity of the two artifacts is evident and deserves attention.

In view of these various considerations, we take it for granted that the Parisian gem, whose size (2.3 x 1.7 cm) suits a ring stone, was used as a signet, but possibly

---

86 I follow Orth 1996: 123, n. 34, and Green 2014: 73, n. 38, who convincingly suggest independently of each other that Augustus published his horoscope twice. Our source for the earlier case is Suet. Aug. 94.12 (in the context of Octavian's consultation with the astrologer Theogenes in Apollonia in 45/44 BCE): *tantam mox fiduciam fati Augustus habuit, ut thema suum uulgauerit nummumque argenteum nota sideris Capricorni, quo natus est, percusserit.* The source for the latter case is Cass. Dio 66.25.5 (in the context of events that occurred in 11 CE): καίτοι οὕτως οὐδὲν τῷ Αὐγούστῳ τῶν καθ' ἑαυτὸν ἔμελεν ὥστε ἐκ προγραφῆς πᾶσι τὴν τῶν ἀστέρων διάταξιν, ὑφ' ὧν ἐγεγέννητο, φανερῶσαι. The majority of scholars who discussed these sources started from the unquestioned assumption that both authors speak of one and the same event, and that the question is whether this event took place in Augustus' early or late life (cf. e.g. Cramer 1954: 99, 211, 250, Potter 1994: 147 and 256, n. 4, Schmid 2005: 19, Terio 2006: 88–89). An adequately comprehensive discussion of both sources is a *desideratum* that I plan to address with a separate article.

87 On this ring, see Heilen 2015: 291 (s.v. Hor. gr. 327.VIII.17), and esp. Heilen – Greenbaum 2016: 32 (fig. I-9), 138, and 189, no. 60.

88 This is the earliest known application of Ptolemy's astronomy to a horoscope (Jones 2010: 32–33). Numerous less sophisticated horoscopes are, however, extant from the late 1st c. BCE onwards (see the catalogue in Heilen 2015: 204–333).

89 This conjecture has been advanced by Heilen in Heilen – Greenbaum 2016: 138, with reference to the fact that astrology and medicine were throughout antiquity closely related sciences which overlapped in the field of iatromathematics (medical astrology) and were in many cases practiced by one and the same individual. Rea's attempt at explaining the seal's motifs as serving an apotropaic purpose (Rea, 1980: 158) does not seem plausible.

not as a personal seal (*anulus signatorius*)[90]. Maybe the owner used it only for private purposes that involved trusted individuals or no other persons at all.

Be this as it may, the use of a signet produces imprints, and imprints are, as mentioned above (p. 9), the only plausible function of the Parisian gem whose mirrored Greek letters are otherwise illegible. Hence, it is worth reflecting on these imprints. If the creation of the Parisian horoscope-gem was inspired by the Alexandrian coin series, especially by the Sarapis-coin or by the Sarapis-and-Isis-coin[91], then the imprints left by our horoscope-gem would resemble the coins insofar as (a) both the casts and the coins would let the iconographic details stand out in relief, (b) both the casts and the coins would spread in the social environment – either on a larger (public) or on a smaller (private) scale – a specific form of zodiacal imagery, and (c) this imagery would in both cases be related to a specific moment in time, namely the beginning of a long new Sothic cycle (with its propitious signification for the reign of Antoninus Pius) and the beginning of a comparatively short new individual life. In this perspective, the Parisian gem could, with all due caution, be understood as a clever appropriation of the symbolic importance of the Alexandrian coin series to an individual purpose. Admittedly, this line of thought hinges on whether the Parisian gem was actually inspired by the Alexandrian coin series, yet this premise seems fairly plausible.

STEPHAN HEILEN

6. *The purpose of the Palestrina gem*

Our second gem's purpose appears to be different, because its imagery is not mirrored and the gem cannot be used as a signet[92]. If considered apart from its Parisian twin, the engraving of the Palestrina gem does not show any important mark of a

---

90 The largest archives of personal seal impressions on clay are those from Zeugma, on the Euphrates, which preserve c. 35.000 impressions ranging from the 1st c. BCE to the 3rd c. CE. No horoscope-impression has hitherto been noticed amidst this material, but a zodiac framing Helios has been published: ÖNAL 2007: no. 230.

91 Compare the Sarapis-gem of the Bircher collection which imitates the Sarapis-coin (fig. 3b above), as mentioned above, p. 111 with n. 27. Note that Sarapis faces left on the coin, but right on the Bircher gem: this means that Sarapis will again face left on the casts which the gem produces and publicizes. However, the casts of the gem, which measures 1.88 x 1.52 cm (PAGENSTECHER 1923: 120, fig. 128), would be significantly smaller than the coin whose diameter is 3.5 cm (JONES 2016: 192, no. 84).

92 The transparency of the stone could have been used to achieve a special artistic effect: if the imagery had been cut in a specular manner into the flat surface of the rock crystal, the gem would offer a signet on one side and the true image if watched from the other side. However, we have ascertained by autopsy that the intaglio is on the convex surface of the Palestrina gem, and that it is not specular.

modern imitation. However, the details singled out above prove that the engraver copied after a model thereby misunderstanding some letter numbers and symbols, such as the sword-sickle of Saturn and the beam-balance of Virgo. Moreover, it would seem nonsensical to have two personal horoscope-gems cut, but one specular to the other, and use them alternately. Therefore one of them, i.e., the Palestrina gem, appears to be a modern copy of the original, engraved after an imprint of the Parisian gem.

This is by no means surprising or an isolated case. Many fakes of the 17th to 19th centuries have been made by copying after engravings such as those published by Abraham van Goorle (lat. Gorlaeus, 1549–1608) and by Jean-Jacques Chifflet (1588–1660)[93]. The most interesting and fascinating magical gems have been chosen to copy. An intriguing case is that of a famous cameo in the Swiss collection of Leo Merz depicting Hermes holding a tortoise and his caduceus and, on the reverse, the following inscription: ΙΑΩ | ΑΒΡΑCΑC | ΑΔΩΝΑΙΑ | ΓΙΟΝΟΝΟΜ | ΛΑΕΞΙΑΙΔΥ | ΝΑΜΙC+ΥΛ | ΑΞΑΤ[ΟΥΕ | ΒΙΑΝ ΠΑΥ | ΛΕΙΝΑΝ[94]. Barb and Vollenweider dated this intaglio to the 1st c. CE[95]. But the complete inscription is preserved on a gem drawn by Jacob Spon in 1685; it reads as follows: obverse: ΙΑΩ | ΑΒΡΑCΑC | ΑΔΩΝΑΙΑ | ΓΙΟΝΟΝΟΜ | ΑΔΕΞΙΑΙΔΥ | ΝΑΜΙCΦΥΛ | ΑΞΑΤΕΟΥΕ | ΒΙΑΝΠΑΥ | ΛΕΙΝΑΝ; reverse: ΑΠΟ | ΠΑΝΤ | ΟCΚΑΚ | ΟΥΔΛΙ | ΜΟΝ | ΟC[96]; i.e.: Ἰάω Σαβαὼθ Ἀδωναῖ, ἅγιον ὄνομα, δεξιαὶ δυνάμεις, φυλάξατε Οὐέβιαν Παυλεῖναν ἀπὸ παντὸς κακοῦ δαίμονος ('Yahweh Sabaoth Adonai, holy name, favorable powers, protect Vibia Paulina from any evil demon!'). A copy of this gem[97] was acquired by the library of Sainte Geneviève in Paris and published a few years later by Claude Du Molinet[98], who was unable to read the fourth line of the obverse. The magnificent cameo in Switzerland is far more precious than Spon's original and replaces the final part of the inscription with a noteworthy figure of Hermes, but the mistakes in copying the Greek letters suggest the work

93 See Michel 1999–2000 and Michel 2004: 18–26. See also the case of a Mithraic gem in Udine (Mastrocinque 2003–2007, II: 162, no. Ud 1), which is a specular 19th or 20th c. copy of an ancient gem in Florence (Ibid., II: 56, no. Fi 59).

94 Barb 1964: 1–2 and fig. 1a–b. We use the character | to indicate line-breaks.

95 Barb 1964: 1–9, and Vollenweider 1984: 290–293, no. *508. Cf. Mastrocinque 1998: 105–109, where he followed Barb and put in comparison the three gems, but Mastrocinque 2003–2007, I: 445, no. 433, supposed that one specimen could have been a copy.

96 Spon 1685: 297. Cf. Mastrocinque 2003–2007, I: 445–446, with bibliography.

97 Spon's gem was a jasper whereas that in Paris was a magnetite.

98 Du Molinet 1692: 127, pl. 29, 7–8; cf. Mastrocinque 2003–2007, I: 444–445.

of a forger, who was a great engraver of the early 18th century – as Erika Zwierlein-Diehl[99] first recognized – but not sufficiently acquainted with Greek. As in the case of our horoscope-gem, it is highly improbable that Vibia Paulina had two or even three similar gems engraved (and that all these gems survived from antiquity), and we can assert that the most precious specimen is a fake[100].

One century earlier, a similar case occurred with a beautiful magical gem in the Capello collection in Venice (now in Kassel)[101], after which a copy was made and sold to Teodoro Correr (1750–1830) in whose collection (now housed in the *Museo Correr*) this copy has been ever since. The original jasper had the anguipede cock on the obverse, whereas the copy features Chnoubis instead. However, this snake-god has, on the Correr-gem, a tail ending with a star, and it stretches its tongue out of its mouth: this is proof of its recent production[102].

Still another case is a gem of Pescennius Niger which was drawn by De Boze in 1705[103] and impressed into a sulphur paste kept in Verona[104]. A twin of this gem, a glass paste, exists at Ascona (*Eranos Foundation*), but it is impossible to ascertain whether it is the ancient red jasper used by De Boze as the model for his drawing or another modern copy in a not so precious material such as a semi-precious stone.

One also finds cases with zodiacal imagery: An astrological gem featuring Sagittarius surrounded by Mars, Venus (?), Saturn, Mercury, and a small head of Pan (or rather Jupiter?) was drawn in the 17th century, and a free copy in Renaissance style was made after its model (i.e., the gem itself) and coated with glossy red varnish, thus indicating that the gem may have been a red jasper. The copy, which belonged to the collections of the prince-electors at Heidelberg in the 17th c., was acquired by the Musée Calvet at Avignon where it is to the present day[105].

---

99 ZWIERLEIN-DIEHL 2014: 113–115.

100 Probably Du Molinet's magnetite specimen, as well. On the relationships between all three gems see also ZWIERLEIN-DIEHL 2014: 113–117 (with illustrations).

101 ZAZOFF 1970: 226–227, no. 127 (cf. vol. 2, plate 100).

102 MASTROCINQUE 2003–2007, II: 166, no. VeC 5.

103 See MASTROCINQUE 2003–2007, I: 374–375, no. 338.

104 This sulphur cast has been published by FACCHINI 2012: 103, no. 81.

105 See MASTROCINQUE 2003–2007, I: 386, no. 355. The head of Pan may be a mistake by who made the drawing or who copied an ancient gem.

7. *Conclusion*

Both gems feature the same birth-horoscope employing (apart from small differences in detail) the same complex imagery. This imagery resembles the iconographic program of the Sarapis-coin and the Sarapis-and-Isis-coin of the Alexandrian coin series and may well have been inspired by one or both of them. Since the imagery on both gems is virtually the same and the encoded astronomical data are identical[106], the two gems cannot have originated independently of each other. On the other hand, the iconographic mistakes and oddities on the Palestrina gem[107] leave no reasonable doubt that it is a modern imitation, made after a cast of the Parisian gem[108]. Two different scenarios are possible: either the copy was made during the time-span between the Parisian gem's discovery (possibly made by unauthorized diggers in an ancient Syrian tomb) and its acquisition by Henri Seyrig, or it was made later, based on the photograph of its impression published by Neugebauer in 1969 (plate 94). The latter scenario, which implies that the copy was made between 1969 and 1995 (the date of Devoto's article), seems more likely, not last because the ground line beneath the feet of the central bull, which is visible on the Parisian gem, is not visibile on its published impression[109]. In both cases the imitator or forger[110] consciously opted for a different (translucent) material and a significantly larger format than the authentic gem[111]. He thus created a particularly intriguing and artistically finer gem, probably with the intention of making a higher profit. Without the helpfulness of various scholars around the globe and a strong dose of good luck[112] the Palestrina gem would probably continue for many years to be considered an authentic piece of ancient art.

Attilio Mastrocinque

---

106 Apart from the engraving mistake B for K on the Palestrina gem; see above, p. 117.

107 See the tabular comparison above, pp. 118–122.

108 Also E. Zwierlein-Diehl is convinced that this gem is a modern imitation (e-mail, 7.7.2017). Absolute certainty is impossible because the traces left by ancient and modern drills on the surface of a gem cannot be dated with methods of the natural sciences (G. Platz-Horster, e-mail, 29.6.2017).

109 See above, n. 77.

110 We speak of a forger if his motive was wilful deceit of others (often combined with the pursuit of financial profit). It seems less likely, yet theoretically possible, that we are dealing with an imitation for private pleasure and/or for pure artistic emulation.

111 Neugebauer's legend to plate 94 specifies the gem's dimensions correctly.

112 See above, n. 19.

ASTRONOMICAL AND ASTROLOGICAL APPENDIX

Some addenda to Neugebauer's brief astronomical analysis of the Parisian gem may be useful[113]. He interprets the Greek letters M and A around the bust of Helios as "μοῖρα α of Cancer which can mean Cancer 1° or 0°, preferably the latter". I see no good reason for the preference expressed by Neugebauer, and his alternative between two *points* of longitude (either 1° CAN or 0° CAN) is anachronistic because whenever ancient astrologers indicate single degrees of longitude, they mean *arcs*, not (modern) *points* of longitude. Hence, the ancient expression μοῖρα α means the arc extending from the point 0° CAN to the point 1° CAN and does not contain semantic clues that allow us to narrow the expression further down[114]; on the contrary: the ancient astrologer who cast the horoscope might have used tables to compute a longitude such as 1° 18′ CAN or 1° 35′ CAN, and then just rounded or discarded the minutes of arc. If he envisaged the sun as being located exactly at the beginning of Cancer (in modern notation: at 0° CAN), then the horoscope was cast for the moment of the summer solstice. It will, however, become clear from the following table that the astrologer is more likely to have envisaged the sun as being near 1° CAN.

Neugebauer does not mention explicitly that his recomputation of the astronomical longitudes is based on a tropical framework, as usual in modern astronomy, while ancient astrologers before c. 200 CE, and some still much later, worked with sidereal longitudes[115]. The discrepancy between these two frames of reference was almost 6° at the beginning of the Christian era and faded slowly due to the precession of the equinoxes. For a nativity in 215 CE we should still expect the ancient astronomical data to be 2° 11′ higher than the results of modern tropical recomputation[116]. The actual differences will become clear from the comparison of columns I and V of the following table:

---

113 See NEUGEBAUER 1969: 362. I shall continue speaking exclusively of the Parisian gem because the Palestrina gem exhibits a mistake in the position of Mercury (see above, n. 52).

114 Cf. HEILEN 2015: 594–595, on the horoscope of Hadrian cast by Antigonus of Nicaea in which Jupiter, the moon and the ascendant are, according to the text, all three together in the first degree of Aquarius.

115 He was, of course, aware of this; see NEUGEBAUER – VAN HOESEN 1959: 172.

116 Applying formula (3) of JONES 1999, I: 343, which he recommends for the conversion of modern tropical longitudes into ancient sidereal longitudes. For a sample application of Jones' formula with detailed explanation, see HEILEN 2015: 599.

	I: Gem:	II: Ptolemy, *Handy Tables*[117]:	III: Neugebauer, 1969, 362:	IV: My recomputation[118]:	V: Expected sidereal longitude (= col. IV + 2º 11′):
Sun	1º CAN	27º 38′GEM	0º CAN	29º 22′GEM	1º 33′ CAN
Moon	18º LIB	12º 23′ LIB	"in Libra"	14º 17′ LIB	16º 28′ LIB
Saturn	27º VIR	24º 41′ VIR	28º VIR	27º 01′ VIR	29º 12′ VIR
Jupiter	17º LIB	16º 46′ LIB	18º LIB	17º 53′ LIB	20º 04′ LIB
Mars	19º GEM	12º 09′GEM	14º GEM	13º 17′GEM	15º 28′GEM
Venus	02º CAN	22º 42′GEM	22º GEM	22º 48′GEM	24º 59′GEM
Mercury	21º CAN	14º 45′CAN	20º CAN	18º 20′CAN	20º 31′CAN
ASC	11º TAU			08º 55′ TAU	11º 06′ TAU

Table 1: Planetary longitudes on Friday, 23 June 215 CE (1:46 a.m. at Beirut)

As the table shows, the gem's longitudes confirm the correctness of Neugebauer's calendrical date (23 June 215 CE) beyond doubt. While the agreement is excellent in the case of the moon and (surprisingly) of Mercury, it is bad in the case of Mars and Venus, not surprisingly in view of the notorious inaccuracies of pre-Ptolemaic planetary theory regarding Mars, Venus, and Mercury[119]. The gem's data regarding the sun and the slow-moving planets Saturn and Jupiter, which are usually fairly accurate in horoscopes of that period, are here somewhat lower than expected, but it would be bold to conjecture that the entire set of data is based on a tropical fra-

[117] Computed with Raymond Mercier's software *Deviations 11* for 7° East of Alexandria, 22 June 215 CE, 13h 45m after noon. The Almagest yields almost identical longitudes. The longitudinal shift of 7° results from Ptolemy's geographical coordinates of Berytos (Beirut), namely 67° 30′ E / 33° 40′ N (geogr. 5,15,5), and those of Alexandria, namely 60° 30′ E / 31° N (ibid. 4,5,9 and 7,5,14; the zero meridian for these longitudes are the Blessed Islands i.e., the Canaries). The true distance is only 5° 31′. The data computed here are, of course, but an approximation based on the place of the gem's acquisition (Beirut), because the birthplace of its ancient owner is unknown.

[118] Computed with *Galiastro* 4.3.

[119] The earliest certain application of Ptolemaic astronomy to a horoscope is on the golden seal-ring from Syria mentioned above (n. 91).

mework (if that were the case, it would be our earliest Greco-Roman horoscope with tropical longitudes). The closest parallel to our case is a papyrus horoscope for 27 November 218 CE, which gives all planetary longitudes to the minute of arc: its longitude for Saturn is three degrees lower than expected while those of sun and Jupiter almost exactly match our expectation[120].

The ascendant of our horoscope indicates that it was cast for two seasonal hours after midnight. It was standard in extant ancient birth horoscopes to specify the time of birth by seasonal hours, occasionally with the specification that it was the beginning or the end of a certain hour[121]. Higher precision was practically impossible in societies that had to rely on sun-dials and water-clocks. Since sunrise on 23 June 215 CE in Beirut was about 5 AM, each seasonal hour would take c. 50 minutes in equinoctial (i.e., modern) time-reckoning. Hence, the end of the second seasonal hour was about 1:40 a.m. The astrologer who cast the horoscope was probably working from an information given to him that the native had been born at the (end of the) eighth hour of night.

As far as the astrological interpretation of this nativity is concerned, it would not be wise to spend much time on a systematic analysis of all those parameters that can be derived from the gem's astronomical data, such as the zodiacal dignities of the seven planets[122], their conjunctions and aspects[123], their positions within the twelve places of the *dodecátropos*[124], etc. This would not be wise because even if we based such an analysis on the tenets expressed in ancient astrological manuals, we could only guess how familiar an actual observer of the gem's imprint was with those tenets, how carefully he or she would examine the data, and which details would strike

120 See JONES 1999, I: 258–259, on P. Oxy. astron. 4245. Note that the "modern" longitudes given by Jones are sidereal data that have been converted using his formula (3) (see IBID., I: 249, n. 1, and I: 343). See also HEILEN 2015: 278, s.v. Hor. gr. 218.XI.27.

121 See NEUGEBAUER – VAN HOESEN 1959: 169–170, and HEILEN, forthcoming.

122 No one of them is in its own zodiacal house or in its exaltation or in its fall. Two of them are in their terms (according to the authoritative 'Egyptian' system: see HEILEN 2015: 718–731, esp. 719 with tab. 17a–b): Jupiter, whose term in Libra extends from 14° to 21°, and Mars, whose term in Gemini extends from 17° to 24°. Venus is in her zodiacal triplicity (♋♏♓; cf. HEILEN 2015: 717), but she is its day ruler, while the nativity is nocturnal. It seems that the data have not been rectified (i.e., manipulated).

123 Suffice it to emphasize the conjunction of Jupiter and the moon in Libra as well as the aspects that both of them entertain with Mars (trine) and the trio sun/Venus/Mercury (square). Moreover, Saturn is in square aspect with Mars and in sextile aspect with the solar trio. For astrological interpretations, see Firm., *math*. 6.3–27.

124 For the relevant predictions, see Firm., *math*. 3.2–13, Paul. Alex., 24 and Rhet., 5.57 (on the lost common source of these chapters see HEILEN 2015: 1239–1243).

him or her more or less. The most prominent detail in our gem's iconography, i.e., the ascendant's longitude 11° TAU, is associated with a very positive prediction in decanal astrology[125], but again we cannot tell how many of those contemporaries, whom the ancient owner wanted or expected to see his gem's imprint, actually knew that doctrine. Regrettably, the date in question (23 June 215 CE) is not known to be any historically relevant individual's birthday[126].

Stephan Heilen

Bibliography

Abry, J.-H. (ed.),
- *Les tablettes astrologiques de Grand (Vosges) et l'astrologie en Gaule Romaine. Actes de la Table-Ronde du 18 mars 1992 organisée au Centre d'Études Romaines et Gallo-Romaines de l'Université Lyon III*, Lyon, 1993 (Collection du Centre d'Études Romaines et Gallo-Romaines. n.s. 12).

Barb, A. A.,
- "Three Elusive Amulets", *Journal of the Warburg and Courtauld Institutes,* 27 (1964) 1–22.

Barbierato, F.,
- "Charles Patin. Medicina ed erudizione a Padova nel secondo Seicento", in: Gabriele, M. et al.: *Antonio Capello, Prodromus iconicus sculptilium gemmarum Basilidiani amulectici atque talismani generis* [Venezia 1702], new ed. by Mino Gabriele with two introductions by A. Mastrocinque and F. Barbierato, Udine, 2008: 13–15.

Boardman, J.,
- *The Marlborough Gems formerly at Blenheim Palace*, Oxfordshire, Oxford, 2009.

---

125 The ascendant falls into the second decan of Taurus (10°–20° TAU). If this decan is rising in a nativity, it produces, according to Hephaestio of Thebes (early 5th c. CE; he derived his data on the decans from an earlier, now lost source) an individual who will be rich, ruling, ready of wit and happily married, one who will be deemed worthy of the power to decide (esp. law-suits) and of being entrusted deposits of money or property: ὁ δὲ ἔχων τὸν δεύτερον [sc. δεκανὸν] ὡροσκοποῦντα ἔσται πλούσιος, ἀρχοντικός, ἀγχίνους καὶ εὔγαμος, ἐπιτροπῶν καὶ παρακαταθηκῶν ἀξιούμενος (Heph., I 1.35). Hephaestio continues specifying the physical characteristics of such natives and their individual climacteric years (ibid. I 1.36–37). Some of the other 35 decans signify rather miserable lives, ex. gr. the first decan of Libra (Heph., I 1.127–130), the third of Scorpio (ibid., I 1.154–156), or the second of Sagittarius (ibid., I 1.171–173). As to the less important detail that the ascendant also falls into a term of Mercury (8°–14° TAU), see the positive interpretation of Firm., *math.* 5.2,15.

126 According to Kienast 1996: 185, the son of the Roman emperor Maximinus Thrax, named Maximus, was born "um 215 (?)". Kienast's other references to the year 215 are equally useless to our purpose: Caracalla spent the summer of 215 CE in Antiochia (Ibid.: 162), and Iulia Domna took over the *cura epistularum Graecarum et Latinarum et libellorum* in 215 CE (Ibid.:: 167).

CARLSON, C. W. A.,
- "Pictorial Coin Types of Roman Egypt. First Approximation to a Rarity Guide", *Journal of the Society of Ancient Numismatics,* 6 (1974–1975) 24–25.

CRAMER, F. H.,
- *Astrology in Roman Law and Politics*, Philadelphia, 1954 (Memoirs of the American Philosophical Society. 37; repr. Chicago, 1996).

CRAWFORD, M. H.,
- *Roman Republican Coinage*, 2 vols., Cambridge, 1974.

CUMONT, F.,
- Art. 'Zodiacus', in: CH. DAREMBERG & E. SAGLIO (eds.), *Dictionnaire des antiquités grecques et romaines d'après les textes et les monuments*, vol. 5, Paris, 1919, cols. 1046–1062.

CURTIS, J. W.,
- "Pictorial Coin Types at the Roman Mint of Alexandria. A Third Supplement", *The Journal of Egyptian Archaeology,* 41 (1955) 119–120.

DATTARI, G.,
- NUMI AUGG. ALEXANDRINI, *Catalogo della collezione G. Dattari compilato dal proprietario*, vol. 2, Cairo, 1901.

DEVOTO, G.,
- "Il versatile "cristallo di rocca"", *Bollettino di Numismatica,* 25 (1995) 139–160.

DEVOTO, G., & MOLAYEM, A.,
- *Archeogemmologia. Pietre antiche – glittica, magia e litoterapia*, Rom, 1990.

DU MOLINET, C.,
- *Le Cabinet de la bibliothèque de Sainte Geneviève*, Paris, 1692.

EVANS, J.,
- "The Astrologer's Apparatus: A Picture of Professional Practice in Greco-Roman Egypt", *Journal for the History of Astronomy,* 35 (2004) 1–44.

FACCHINI, G. M.,
- *Le impronte di gemme della Collezione del Museo Archeologico di Verona, Ritratti antichi o all'antica e altri motivi*, vol. II, Milano, 2012.

GEISSEN, A.,
- *Katalog alexandrinischer Kaisermünzen der Sammlung des Instituts für Altertumskunde der Universität zu Köln,* Band 2: *Hadrian - Antoninus Pius (Nr. 741–1994)*, Opladen, 1978 (Papyrologica Coloniensia, vol. 5; corr. repr. 1987).

GELIN, M.,
- "Histoire de l'Institut Français d'Archéologie de Beyrouth, 1946–1977", *Syria,* 82 (2005) 279–329 [online: http://www.persee.fr/docAsPDF/syria_0039-7946_2005_num_82_1_8696.pdf].

GREEN, S. J.,
- *Disclosure and Discretion in Roman Astrology. Manilius and his Augustan Contemporaries*, Oxford, 2014.

GREENBAUM, D. G., and ROSS, M.,
- "Various Renderings of Πίναξ in Greek and Demotic at Medīnet Māḍi", in: *Astrology in Time and Place: Cross-Cultural Questions in the History of Astrology*, ed. by N. CAMPION and D. G. GREENBAUM, Newcastle upon Tyne, 2015: 109–129.

Gundel, H. G.,
- "*Imagines zodiaci*. Zu neueren Funden und Forschungen", in: *Hommages à Maarten J. Vermaseren* [...], édité par M. B. de Boer et T. A. Edridge, vol. I, Leiden, 1978 (Études préliminaires aux religions orientales dans l'empire romain. 68): 438–454.
- *Zodiakos. Tierkreisbilder im Altertum. Kosmische Bezüge und Jenseitsvorstellungen im antiken Alltagsleben*, Mainz, 1992 (Kulturgeschichte der Antiken Welt. 54).

Gundel, H. G., and Böker, R.,
- *Zodiakos. Der Tierkreis in der antiken Literatur und Kunst. Mit einem Beitrag über den Tierkreis im Alten Orient von Robert Böker*, München, 1972 [= enlarged special edition of Id., Art. 'Zodiakos', *RE* X.A, München, 1972, cols. 462–709].

Gundel, W.,
- Art. 'Parthenos (1)', *RE* XVIII 2,3 (1949), cols. 1936–1957.

Gundel, W., and Gundel, H. G.,
- *Astrologumena. Die astrologische Literatur in der Antike und ihre Geschichte*, Wiesbaden, 1966 (Sudhoffs Archiv. Beiheft 6).

Heilen, S.,
- "Zur Deutung und Datierung des 'Löwenhoroskops' auf dem Nemrud Dağı", *Epigraphica Anatolica,* 38 (2005) 145–158.
- "Another Horoscope Gem", *MHNH,* 9 (2009) 273–284.
- Hadriani genitura. *Die astrologischen Fragmente des Antigonos von Nikaia*, 2 vols., Berlin et al., 2015 (Texte und Kommentare. 43,1–2).
- "Short Time in Greco-Roman Astrology", in: *Down to the Hour. Perspectives on Short Time in the Ancient Mediterranean. Proceedings of a Workshop at the University of Chicago, 24–25 February 2017*, forthcoming.

Heilen, S., and Greenbaum, D.,
- "Astrology in the Greco-Roman World", in: Jones, 2016 (see below): 123–141.

Hornbostel, W.,
- *Sarapis. Studien zur Überlieferungsgeschichte, den Erscheinungsformen und Wandlungen der Gestalt eines Gottes*, Leiden, 1973 (Études préliminaires aux religions orientales dans l'Empire Romain. 32).

Hübner, W.,
- "Privates und öffentliches Horoskop", *WJA N.F.,* 35 (2011) 33–59.
- *Athena am Sternhimmel bei Proklos. Astrologie im Dienste neuplatonischer Philosophie*, München, 2017 (Sitzungsbericht der Bayerischen Akademie der Wissenschaften. 2017/1).

Jones, A.,
- *Astronomical Papyri from Oxyrhynchus (P. Oxy. 4133–4300a)*. Edited with Translations and Commentaries, 2 vols., Philadelphia, 1999 (Memoirs of the American Philosophical Society. 233).
- "Ancient Rejection and Adoption of Ptolemy's Frame of Reference for Longitudes", in: Id. (ed.), *Ptolemy in Perspective. Use and Criticism of his Work from Antiquity to the Nineteenth Century*, New York et al., 2010 (Archimedes. New Studies in the History of Science and Technology. 23): 11–44.

- (ed.), *Time and Cosmos in Greco-Roman Antiquity [Catalogue of the Homonymous Exhibition, at the Institute for the Study of the Ancient World at New York University, 19 October 2016 – 23 April 2017]*, New York – Princeton, 2016.

KIENAST, D.,
- *Römische Kaisertabelle. Grundzüge einer römischen Kaiserchronologie*, 2. erweiterte Auflage, Darmstadt, 1996.

LEHR, L.,
- *Beschreibung und Bedeutung der zwölf Tierkreiszeichen auf den Grossbronzen von Alexandria unter der Regierung des Antoninus Pius*, Hilterfingen, 1971 (special print from the Helvetische Münzenzeitung).

MAASKANT-KLEIBRINK, M.,
- *Catalogue of the Engraved Gems in the Royal Coin Cabinet*, The Hague, vol. I (Text), Wiesbaden, 1978.

MASTROCINQUE, A.,
- "Studi sulle gemme gnostiche", *ZPE,* 122 (1998) 105–118.
- (ed.), *Sylloge gemmarum gnosticarum, vol. I–II*, Roma, 2003–2007 (Bollettino di Numismatica. Monografia. 8.2.1–2).
- "Neotera and her Iconography", in: ID. & CONCETTA GIUFFRÉ SCIBONA (eds.), *Demeter, Isis, Vesta, and Cybele: studies in Greek and Roman religion in honour of Giulia Sfameni Gasparro*, Stuttgart, 2012 (Potsdamer Altertumswissenschaftliche Beiträge. 36): 105–118.
- *Les intailles magiques du département des Monnaies, médailles et antiques*, Paris, 2014.

MICHEL, S.,
- "Nürnberg und die Glyptik. Steinschneider, Sammler und die Gemmenkunde im 17. und 18. Jahrhundert", *Nürnberger Blätter zur Archäologie,* 16 (1999/2000) 65–91.
- *Die Magischen Gemmen. Zu Bildern und Zauberformeln auf geschnittenen Steinen der Antike und Neuzeit,* Berlin, 2004 (Studien aus dem Warburg-Haus. 7).

NEUGEBAUER, O.,
- "A Horoscope-Gem", *American Journal of Archaeology,* 73 (1969) 361–362.

NEUGEBAUER, O., and VAN HOESEN, H. B.,
- *Greek Horoscopes*, Philadelphia, 1959 (repr. 1987).
- "Astrological Papyri and Ostraca: Bibliographical Notes", *Proceedings of the American Philosophical Society,* 108 (1964) 57–72.

NEUGEBAUER, O., PARKER, R. A., and PINGREE, D.,
- *The Zodiac Ceilings of Petosiris and Petubastis [with German contributions by Rainer Stadelmann and Jürgen Osing], in: Denkmäler der Oase Dachla. Aus dem Nachlass von Ahmed Fakhry*, Mainz, 1982 (Archäologische Veröffentlichungen. 28): 96–101 (and fig. 36–44).

ÖNAL, M.,
- *Clay Seal Impressions of Zeugma,* Ankara, 2007.

ORTH, W.,
- "Astrologie und Öffentlichkeit in der frühen römischen Kaiserzeit", in: G. BINDER & K. EHLICH (eds.), *Kommunikation in politischen und kultischen Gemeinschaften*, Trier, 1996 (Stätten und Formen der Kommunikation im Altertum. 5; = Bochumer altertumswissenschaftliches Colloquium. 24): 99–132.

Osing, J.,
- *Die Gräber des Petubastis und Petosiris, in: Denkmäler der Oase Dachla. Aus dem Nachlass von Ahmed Fakhry*, Mainz. 1982 (Archäologische Veröffentlichungen. 28): 71–95.

Pagenstecher, R.,
- *Expedition Ernst Sieglin. Ausgrabungen in Alexandria*, Teil II 1a, Leipzig, 1923.

Potter, D. S.,
- *Prophets and Emperors. Human and Divine Authority from Augustus to Theodosius*, Cambridge (Mass.) – London, 1994 (Revealing Antiquity. 7).

Rea, J. R.,
- "A Gold Ring with a Horoscope of A.D. 327", *ZPE,* 39 (1980) 155–158.

Richter, G. M. A.,
- *The Engraved Gems of the Greeks, Etruscans and Romans,* Part II: *Engraved Gems of the Romans. A Supplement to the History of Roman Art,* London, 1971.

Savio, A. (ed.),
- *Numi Augg. Alexandrini. Catalogo della collezione Dattari*, [Italian text translated into English and edited by Italo Vecchi & Peter A. Clayton], 2nd revised and enlarged edition, Trieste, 2007 (1st ed. 1999).

Sayles, W. G.,
- *Ancient Coin Collecting IV: Roman Provincial Coins*, Iola (WI), 1998.

Schmid, A.,
- *Augustus und die Macht der Sterne. Antike Astrologie und die Etablierung der Monarchie in Rom*, Köln – Weimar – Wien, 2005.

Siebert, G.,
- "Portraits et silhouettes d'Alsace: Seyrig Henri Arnold", *Revue d'Alsace / Fédération des sociétés d'histoire et d'archéologie d'Alsace,* 127 (2001) 372–376 [online: https://halshs.archives-ouvertes.fr/halshs-00001447].

Spon, J.,
- *Miscellanea eruditae antiquitatis ...,* Lyon, 1685.

Terio, S.,
- *Der Steinbock als Herrschaftszeichen des Augustus*, Münster, 2006 (Orbis Antiquus. 41).

Vollenweider, M.-L.,
- Deliciae Leonis. *Antike geschnittene Steine und Ringe aus einer Privatsammlung*, Mainz, 1984.

Walters, H. B.,
- *Catalogue of Engraved Gems and Cameos, Greek Etruscan and Roman, in the British Museum*, revised and enlarged ed., London, 1926.

Zazoff, P.,
- "Die Gemmensammlung der Staatlichen Kunstsammlungen Kassel", in: Id. (ed.), *Antike Gemmen in Deutschen Sammlungen*, vol. III: *Braunschweig*, Göttingen, Kassel. Bearbeitet von Volker Scherf, Peter Gercke und Peter Zazoff, Wiesbaden, 1970: 177–261 [cf. plates 85–118 in the separate tome "Tafeln" of the same year].

ZWIERLEIN-DIEHL, E.,
- *Glaspasten im Martin-von-Wagner-Museum der Universität Würzburg,* Bd. 1: *Abdrücke von antiken und ausgewählten nachantiken Intagli und Kameen*, München, 1986.
- "Wiederentdeckte Originale von Würzburger Glaspasten", *Archäologischer Anzeiger* (1995) 559–564.
- *Antike Gemmen und ihr Nachleben*, Berlin et al., 2007.
- "Intaglio mit Saturnus und Inschrift Mythunim", *Pallas,* 83 (2010) 251–266.
- "Magical Gems in the Medieval and Early-Modern Periods. Tradition, Transformation, Innovation", in: V. DASEN & J.-M. SPIESER (eds.), *Les savoirs magiques et leur transmission de l'Antiquité à la Renaissance*, Florence, 2014 (Micrologus' Library. 60): 87–130.