

## A Bulb of Narcissus on the Egyptian Mummy from University of Wrocław Collection

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**Abstract:** The object of the present study is the ancient bulb of the narcissus found on the mummy, probably of the Ptolemaic period, brought to Wrocław from Italy in the sixteenth century AD. For about four hundred years the mummy was kept by the successive owners of one of pharmacies in Wrocław, and after the World War II became the possession of Wrocław University. Computed tomography made in 2002 revealed an atypical object lying under the left hand of the mummy. Extracted in 2004 it appeared to be the bulb of a flower, and botanical analysis has revealed that it represents the *Narcissus tazetta L.* species. Although the narcissus was known in Egypt, its identification in the ancient sources has never been attempted. Thanks to the analysis of the bio-medical properties of the narcissus, compared with some descriptions of remedies proposed by the medical papyri Ebers and Hearts, as well as with some religious magical texts an identification of the *sennut* plant with narcissus is proposed here.

**Keywords:** Ptolemaic Egypt, Egyptian mummy, flower bulb, *Narcissus tazetta L.*, medical papyri, Nefertum

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The aim of this study is to present and discuss the atypical results obtained during the investigation of a mummy in possession of the Department of Anthropology of Wrocław University, Poland. The mummy was brought from Egypt through Italy in the sixteenth

century AD, and was exposed, together with two other mummies, in the cabinet of curiosities belonging to Laurentius Scholz von Rosenau, a medic and botanist living in Wrocław in the years 1552–1599. The pavilion with the cabinet of curiosities was situated within the area of the botanical garden founded by the city in 1588 and known as *Hortus Scholzianus*.<sup>1</sup> After the death of Scholz the garden including the cabinet of curiosities was purchased by the pharmacist Christian Crusius (Crusius), and later inherited by his son, the medic and pharmacist Jacob, owner of the ‘Pharmacy under Neger’ (‘Mohren-Apotheke’) situated until today at the Solny Place, Wrocław.

In 1658 the renowned man of letters and scientist Andreas Gryphius (1616–1664), then holding the high function in the administration of Głogów and having good relations with members of the city council in Wrocław, was successful in arranging the agreement of Jacob Crusius to perform an autopsy of one of the mummies. This event took place on the 7<sup>th</sup> December 1658, probably in the old garden pavilion, in the company of a number of high positioned citizens of Wrocław. The results of the autopsy were published in 1662 in a book edited by Vítus Jacobus Dreschers editorial house in Wrocław.<sup>2</sup> Some of the observations made on the mummy and the mummification process are most interesting. The skull was found torn off from the vertebral column, and, after the brain had been removed, fixed on a wooden stick. Under one foot of the mummy a flower was found, either a lotus or onion.<sup>3</sup> The mummy can probably be dated to the Ptolemaic or Roman period, because of the position of hands crossed over the breasts (**Fig. 1**) and the finding of a golden leaf, comparable perhaps to an object in the Pelizeaus Museum in Hildesheim.<sup>4</sup> After the autopsy the investigated mummy was sold to the city councilor Jan Christian von Wolfsburg, then to another city councillor Godfrey Springer, and finally it was handed, in 1717, to rector Christian Stieff as a gift to the library in Wrocław. The mummy is now lost.

The second mummy owned by Jacob Crusius was in the time of the autopsy already only in a fragmentary state, having probably been used by the pharmacist as the source of production of the ‘healing’ powder known as *mummiā Aegyptiaca vera*, highly esteemed in those days.<sup>5</sup>

The third mummy, the object of this study, remained intact in the above mentioned pharmacy in Wrocław, serving to appeal the potential customers and even also a kind of the pharmacist’s identification mark. The signs and hieroglyphs found on the mummy’s exterior

<sup>1</sup> Śliwa 2012: 369–370.

<sup>2</sup> Gryphius 1662.

<sup>3</sup> Gryphius 1662: 38; Śliwa 2012: 375.

<sup>4</sup> On the position of hands of mummies, cf.: Gray 1972: 200–202 (with the conclusion that the arms crossed upon the breast prevail in Ptolemaic period); Ikram, Dodson 1998: 130 (with the conclusion that such a position of the arms prevails in the Roman period). The multi-part type cartonnages appear on mummies dated from the latest dynastic to the Roman period cf.: Myśliwiec, Herbich, Niwiński 1995: 195. A comparable material concerning Ptolemaic mummies originates from the Polish excavations at Saqqara, cf.: Kaczmarek *et al.* 2008; Radomska *et al.* 2008. The golden object in the form of the tongue, similar to that from Wrocław, was published by Germer 1988: 25 (dated to the Roman period).

<sup>5</sup> Geßler-Löhr 1998: 109–110; Urbanik, Rzepliela 2002: 572–579; Tomaszewska *et al.* 2012: 59.



1. Mummy having been the object of the autopsy in Wrocław in 1658 (Gryphius 1662: 40).

were practically illegible, and the mummy was blackened.<sup>6</sup> After the end of the World War II the mummy was handed to the Department of Anthropology, Wrocław University. Placed in a glass case, covered with a piece of modern ornamented fabric, and crowned with a tin cap (**Fig. 2**) the mummy soon was given the nickname ‘Snow White’ by school children visiting the exposition of the department.<sup>7</sup> Its original nature has been forgotten, and the body was then misinterpreted as a ‘false mummy’ or ‘mummy of a townswoman of the eighteenth century AD’. It was only in May 1979 when the true nature of the object was detected by an Egyptologist, and in 1981 the mummy was X-rayed in the Department of Radiology of the Medical Academy, Wrocław, by Zdzisława Bem and Tadeusz Krupiński. The results made possible some important observations.<sup>8</sup>

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<sup>6</sup> Śliwa 2012: 373.

<sup>7</sup> According to the letter of 9<sup>th</sup> June 1979 from Wanda Stęślicka, Department of Anthropology, University of Wrocław, to Andrzej Niwiński.

<sup>8</sup> These have been described in the letter of 15<sup>th</sup> February 1981 from Tadeusz Krupiński, Department of Anthropology, Wrocław University, to Andrzej Niwiński.



2. Mummy in the Department of Anthropology of the University of Wrocław, prior to 1981 (Phot. J. Śliwa).

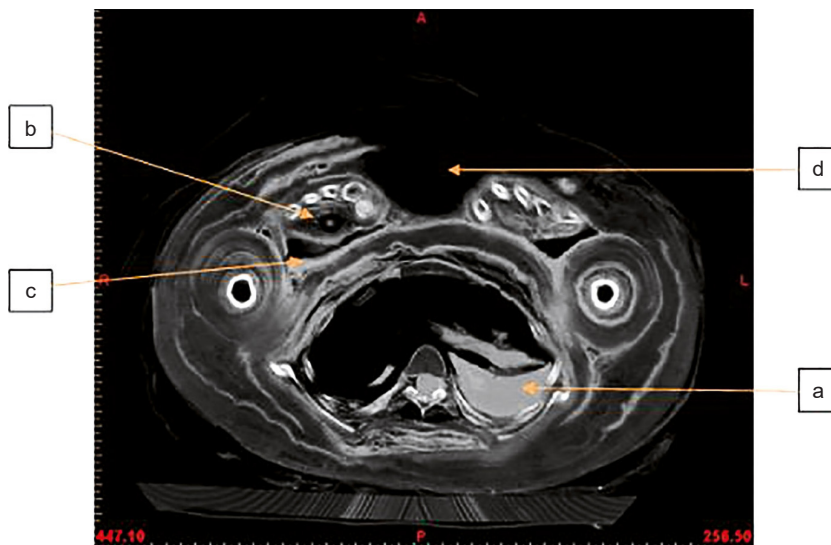
## RADIOLOGICAL INVESTIGATIONS OF THE MUMMY

The mummy belongs to a young adult woman aged 21–23 years, with the arms crossed over the breasts, the left forearm lying above the right one. No metallic objects have been detected; other objects could not be seen on the X-ray image. The position of the hands supports dating of the mummy to the Late period or the Ptolemaic period (seventh–first centuries BC); the Roman period cannot be excluded, either. More data were expected from the computed tomography analysis that could, however, be made only in 2002 by Andrzej Urbanik from the Chair of Radiology, Jagiellonian University Medical College, Cracow. On 26<sup>th</sup> September 2002 the results obtained by the tomography were discussed in Wrocław.<sup>9</sup> Some 752 cross-sectional pictures in the transverse plane of the mummy were made. Cross-sectional images were analysed with the use of SIENET Magic View 300 software.<sup>10</sup> The type of material in particular layers was evaluated, based on Hounsfield units (HU). All measurements were performed with the use of Materialise Mimics 10.01 and SIENET Magic View 300 software. The analysis has revealed that the skull

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<sup>9</sup> By Krzysztof Boryslawski, Tadeusz Krupiński, Andrzej Niwiński, Andrzej Urbanik.

<sup>10</sup> Boryslawski 2009: 200–202.



3. Cross-section through the upper torso at the level of thoracic vertebra 3: a. resin mat; b. narcissus bulb; c. a layer of bandages soaked in resin; d. damage of the bandages (image from the computed tomography done by A. Urbanik in 2002, Cracow).

and spinal canal were filled with resin. Additionally a material of high density (HU 3000), typical for metals, was discovered in the orbits and over the nasal bones, which may contradict the results of the X-ray. It seems that the lowest part of the mummy, beneath the knees, was enveloped separately, and then fixed with two long (over 20cm in length) wooden pegs of square section (2cm of width). Two thin long objects, possibly made of rolled linen, lay upon the shins, which constitutes an analogy to the similar cord-like linen objects discovered on the mummy of Ptolemaic period in the Archaeological Museum, Cracow.<sup>11</sup> Finally, under the left hand reposing on the breast an undetermined oblong object was detected, which was situated near a damaged part of bandages, probably caused by the ancient robbers, and therefore was easy to extract (**Fig. 3**). The act of the extraction took place on the 21<sup>st</sup> September 2004 in Wrocław, during which the flower bulb that is the subject of this paper was found (**Fig. 4**). Additionally, in 2004 the restoration of the intravital appearance of the mummy's head and face was performed. The 3D model was created with the use of the epoxide resin basing on the computed tomography images at the Rapid Prototyping / Rapid Tooling Laboratory in the Institute of Production Engineering and Automation, Wrocław University of Technology.<sup>12</sup>

<sup>11</sup> Niwiński 1998: 186, Pl. 1.1; Urbanik 2001: 79–83.

<sup>12</sup> Borysławski 2009: 200; Tomaszewska *et al.* 2012: 61.





4. The present appearance of the bulb of the *Narcissus tazetta* L. extracted from the mummy in 2004 (Phot. D. Nowakowski).

## PLANT BULBS ON EGYPTIAN MUMMIES

The most common finds of such objects represented the species of onion (*Allium cepa*) and garlic (*Allium sativum*). The bulbs were used during the embalmment process and were placed, for example, in orbits.<sup>13</sup> The flower bulbs, however, were often discovered on mummies, too. Bulbs of an unidentified flower were found on the mummy of Ramesses IV, imitating his eyes, and placed also in the pharaoh's nostrils.<sup>14</sup> Flowers were often used to decorate mummies (Fig. 5),<sup>15</sup> and bulbs of flowers were discovered in some mummies under the bandages. For instance, Thomas Joseph Pettigrew discovered 'bulbous roots' placed under the soles of both feet of a mummy, probably of the Late period,<sup>16</sup> and a similar discovery of a 'bulbous root', albeit only under one foot, was made in 1764.<sup>17</sup>

During the investigations of the Twenty first Dynasty mummies of the priests of Amon and their wives, originating from the Bab el-Gusus tomb at Deir el-Bahari, Georges Daressy made the following observations; mummy no. 82 (man): *sous l'oudja en cire étaient des oignons, probablement de fleurs, ainsi que sous les pieds et les mains*;<sup>18</sup> mummy no. 120 (man): *au-dessous de la plaque de cire étaient posées des feuilles, d'autres pétales de lotus et des oignons étaient placés sous les pieds et le long des jambes*;<sup>19</sup> mummy no. 127 (woman): *sur la poitrine avaient été placés des oignons de fleurs*;<sup>20</sup> mummy no. 139 (woman): *au*

<sup>13</sup> Germer 1988: 42.

<sup>14</sup> Smith 1912: 88.

<sup>15</sup> Schweinfurth 1884: 628–629; Drenkhahn, Germer 1991: 99–104.

<sup>16</sup> Pettigrew 1834: 102.

<sup>17</sup> Granville 1825: 282.

<sup>18</sup> Daressy 1907: 29.

<sup>19</sup> Daressy 1907: 32.

<sup>20</sup> Daressy 1907: 34.



5. Mummy decorated with the flowers and floral garlands (Schweinfurth 1884: 628).



6. The image of the plant of Nefertum carved on an Egyptian sarcophagus (Drawing: A. Niwiński; based on: Naville 1910: Pl. II).

*cou se trouvaient (des amulettes) ainsi qu'un oignon?/ 'bulb'* was usually made during the autopsies done in the seven-teenth–early twentieth centuries AD, modern research of the remains of a bulb found on the neck of Ramesses II's mummy has identified this with *Narcissus tazetta* L. (*cf.*).<sup>22</sup> This is supported by the discovery on the Wrocław mummy, making it theoretically possible that many of the flower bulbs found earlier on mummies may have represented the narcissus species, as well.

#### AN ATTEMPT AT THE IDENTIFICATION OF THE ANCIENT NAME OF NARCISSUS

This hypothesis may perhaps be corroborated by the herbal of Dioskorides Pedanius from the first century AD. He noted that the bulb of narcissus cooked and eaten provoked vomiting, and that fresh bulbs laid on the skin healed burns and open wounds.<sup>23</sup> This may

<sup>21</sup> Daressy 1907: 36.

<sup>22</sup> Germer 1988: 9, 13; after Layer-Lescot 1985.

<sup>23</sup> Germer 1998: 2.

explain the meaning of the above mentioned cases of the scale leaves of a bulb as posed directly on the incisions on some mummies, described by Daressy. Unfortunately, it has so far been impossible to identify the ancient Egyptian word meaning narcissus, and one can quote here Renate Germer's opinion: *So kommt es, daß wir zwar aus botanischen Funden wissen, daß auch die Ägypter die Narcisse kannten, denn Reste von Narcissen-Zwiebelschalen fanden sich an der Mumie Ramses II, doch haben wir keine Möglichkeit, ihre Namen zu identifizieren, der sicher in einigen dieser Rezeptur-Auflistungen vorkommt.*<sup>24</sup>

It seems plausible to propose such an identification here. Edouard Naville long ago published a ritual text, carved on a stone found in Horbeit (the ancient Egyptian *Pharbaethus* near Abu Kebir in the eastern Delta). The text was illustrated with an image of a plant (**Fig. 6**) with its flower similar to a lotus, and crowned with two high feathers, which presented the sacred emblem of Nefertum, and was accompanied by the following words translated by Naville: *Il est grand celui-ci qui sort de la terre humide /.../ la grande puissance qui Keb a mise au monde et qui arrête Set dans sa fureur.*<sup>25</sup> Naville has then found a number of other sources containing the same ritual text, where the name of the plant appears, among other in the Theban Tomb 39 of Puimre: *il est grand celui qui sort de la terre, le sennu issue de Nout, du ciel.*<sup>26</sup>

Regardless of the religious-magical meaning of this plant, glorified as very much efficient for the dead as a weapon of Nefertum, compared sometimes to a terrible lion, its physical features can be deduced from the illustration on the stone from Horbeit, and from the texts, the most useful of which are the medical papyri Ebers (P.Eb. 294) and Hearst (H.35): *the plant the name of which is senutet. It grows from its bulb /.../ and makes the flowers like those of lotus.*<sup>27</sup> The plant *sennu* (or *sennut*, *sennutet*) is growing from a bulb planted in (humid) earth, and its flower resembles lotus. Naville makes, however, a very correct note in this respect: *cette fleur quiqu'elle s'appelle un lotus, n'est pas celle que les naturalistes désignent par le nom de lotus. Leur [= Egyptian] classifications reposent sur l'apparence générale. Ainsi le sennu peut être appelé « lotus », ce qui veut dire plante ayant une fleur du genre de celle du lotus.*<sup>28</sup> Therefore, the suggestions of Victor Loret<sup>29</sup> and Thierry Bardin<sup>30</sup> identifying the *sennut* plant with blue lotus are not correct, since only a physical resemblance of the *flower* with lotus is mentioned in the papyri Ebers and Hearst, and the lotus is not growing from a bulb. Édouard Naville<sup>31</sup> and Andrzej Niwiński<sup>32</sup> suggested that the plant may perhaps be identified with a lily. The identification with narcissus seems, however, much more plausible, not only because of the physical similarities (the bulb, the strongly fragrant flower with white petals and yellow centre), but also

<sup>24</sup> Germer 1998: 3.

<sup>25</sup> Naville 1910: 191, Pl. II.

<sup>26</sup> Naville 1916: 188.

<sup>27</sup> Bardin<sup>et</sup> 1995: 125–128.

<sup>28</sup> Naville 1916: 188–189.

<sup>29</sup> Naville 1927: 34.

<sup>30</sup> Bardin<sup>et</sup> 1995: 296, 379.

<sup>31</sup> Naville 1927: 34.

<sup>32</sup> Niwiński 1998: 189.



because of the biological properties and medical use of the narcissus. A mere observation that the cut flowers of narcissus inserted into a vase together with other flowers make very soon withering process of these, indicates a strong (toxic) interaction of this plant. Both medical papyri make it an efficacious remedy against *setet*, supposed by the ancient Egyptians to be a kind of dangerous being living in the ill body. These *setet* should have been banished alive,<sup>33</sup> and to this purpose the leaves of the *sennut* plant were used, rubbed in the lower abdomen of the sick person. The description of the bio-medical properties of narcissus (cf. Appendix 2) points both to the fact that the various parts of the narcissus plant can be effectively used in the modern medical treatment, and that these are still used in the native African medicine, which supports the observation that ancient Egyptians may have applied narcissus similarly in the daily life.

The creative thought of Ancient Egyptians made, at the same time, the *sennut* plant, thus most probably the narcissus, an efficacious talisman for the dead as a symbol of resurgent life. Mythically identified with Nefertum, the plant could be represented on a coffin, sarcophagus, or in a wall painting, and the bulbs, leaves and flowers of narcissus were laid on the body of the deceased. Those objects were supposed to protect the dead from evil and ensure him/her supernatural forces. One can quote here again Naville, who devoted to Nefertum and his magical plant a special study: *la plante sert de talisman assurant, soit au corps du défunt, soit aux offrandes qu'on déposait à côté de lui, une protection efficace contre ses ennemies, dont le premier devait sans doute être la corruption. Il suffisait de représenter la plante pour la faire naître ; peut-être aussi en mettait-on un spécimen dans le tombeau.*<sup>34</sup>

The growing plant could as well be imitated in linen, what was observed on the Ptolemaic mummy in Cracow,<sup>35</sup> and seems to be also the case on the Wrocław mummy. The placing, on the same mummy, of the narcissus bulb under its hand was another means of protection of the body against the 'fury of Set'.

## APPENDIX 1: THE BOTANICAL ANALYSIS OF THE BULB

Roentgen imaging and computed tomography revealed an atypical structure under the left hand of the mummy (cf. **Fig. 3**). Due to the lesions in the upper torso area the artefact was extracted in order to conduct detailed analysis. The placement of the artifact allowed avoiding damage during the extraction. The artefact was recognised as a flower bulb.

The macroscopic analysis has revealed that the bulb was slightly bent, its length was 5.5cm, and the maximum width was 1.6cm and minimum width (at the apex) was 1.1cm (cf. **Fig. 4**). The observed curve suggests that it was a side bulb of a flower. At the bottom of the bulb there is a basal plate with remains of the scales. In the upper part of the bulb, the external leaf is slightly thicker than the other scales, which are thin and fragile. The size and shape of the bulb are similar to the subspecies of narcissus and iris which develop bulbs.

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<sup>33</sup> Bardinet 1995: 125–128.

<sup>34</sup> Naville 1927: 44.

<sup>35</sup> Niwiński 1998: 182, 186–187.

The microscopic analysis revealed that the scales of the bulb exhibit a thigh cellular structure, and traces of spawn of fungi are visible between the cells. The vascular bundles with visible spiral thickenings are well preserved. There are two types of the thickenings in the vascular system: most are narrow, with close torsions, and some are thicker, with a wide torsions. In the external cell layer the needle-shaped crystals (raphides) are visible, mostly arranged along the vascular bundles. In some areas the raphides are arranged in a chaotic manner.

The anatomy of the scale leaves of the bulb has been compared to the scale leaves of the onion *Allium cepa* L., garlic *Allium sativum* L., narcissus *Narcissus tazetta* L., *Narcissus* sp., iris *Iris Bucharina* M. Foster, and *Iris* sp. The spiral thickenings in the vascular system, similar to those observed and analysed bulb from the Egyptian mummy, are present in narcissus and iris species, but the shape of raphides in this bulb is more typical for the narcissus species. The analysed flower bulb is probably a bulb of *Narcissus tezzetta* L. (cf.), as it was the only narcissus species growing wild in the north part of Egypt. Nowadays the *Narcissus tazetta* L. (cf.) is commonly growing in gardens, which is a tradition since Graeco-Roman period.<sup>36</sup>

## APPENDIX 2: THE BIO-MEDICAL PROPERTIES OF NARCISSUS

*Narcissus tazetta* L. belongs to the *Amaryllidaceae* family and is a type of daffodil. Plants from this family have been used for centuries in the Mediterranean area<sup>37</sup> and by African tribes as medicinal herbs (see also below). Poultices and decoctions based on bulbs and leaves from this plant family have been used in traditional African medicine against abdominal pains and indigestions. The African tribe Zulu also uses rhizomes from daffodils as amulets against evil forces. In higher doses substances contained in *Amaryllidaceae* are very toxic and often used as potent narcotics, or even poison.

From historical sources it is known that the anticancer properties of *Narcissus* sp. were already realised by the ‘father of the medicine’ Hippocrates of Kos (c. 460–370 BC) who recommended a pessary prepared from narcissus oil for the treatment of uterine tumours. The application of narcissus oil in cancer treatment continued in the Middle Ages in Chinese, North African, Central American and Arabian medicine.<sup>38</sup>

Modern medicine derives from traditional methods. Thanks to the advanced biochemistry many substances such as flavonoids, glycosides, phenolics, and the most important – alkaloids have been found as occurring in the plants of this family. Alkaloids are bioactive substances that may strongly affect the human organism. Alkaloids exuded by the *Amaryllidaceae* family exhibit diverse effects on the human body, such as analgesic or tranquilising effects, anticancer capabilities, or even antibacterial, antiviral and antifungal effects. Some of these alkaloids inhibit malaria (*Plasmodium falciparum*) development.<sup>39</sup> Substances isolated from the *Narcissus tazetta* L. species exhibit anti-viral effects, especially potent against *Choriomenigitis* virus that causes a type of aseptic

<sup>36</sup> Täckholm, Drar 1973: 348.

<sup>37</sup> Saad, Said 2011: 239.

<sup>38</sup> Jin 2013: 481; Chegaing Fodouop *et al.* 2015: 11.

<sup>39</sup> Jin 2013: 512–513.

meningitis.<sup>40</sup> Other, alkaloids, for example galanthamin and lycorin, are successfully tested and used as selective acetylcholinesterase inhibitors in Alzheimer's disease patients. Recently, antineoplastic effects of the substances mentioned above have been focused on, and should be tested soon.<sup>41</sup>

To sum up, the alkaloids from the *Narcissus tazetta* L. exhibit strong effects of analgesia, parasympathetic stimulation (AChE inhibition), antibacterial effects, stimulation of the own immune system of the body, and also tranquilising and anti-depression effects. With this in mind, it seems highly possible that poultices made from the leaves of the *Narcissus tazetta* L. and applied on the stomach may exhibit analgesia, and through the stimulation of the parasympathetic nervous system, also the peristalsis may be prompted, which could help in the abdominal pain and indigestions treatment. Due to biostatic and immune-stimulating effects of this kind of treatment even bacterial and viral infections can be inhibited or cured. On the other hand, some potent toxic effects – the substances contained in those plants may provoke: dementia, vomiting, headaches or even hallucinations – may have created the idea of the dangerous 'power' of those plants. All this seems to confirm the possible connection between the *Narcissus tazetta* L. and the ancient Egyptian sources, including the medical papyri Ebers and Hearst.

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<sup>40</sup> Kornienko, Evidente 2008: 1986.

<sup>41</sup> Kornienko, Evidente 2008: 1982–1987; Jin 2013: 514.

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Institut des Cultures Méditerranéennes et Orientales  
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