

Contacts between the Ptolemaic Kingdom and the Black Sea in the Early Hellenistic Age

Zofia Halina Archibald

New evidence of Pontic–Egyptian connections in the 3rd century BC

Were it not for a papyrus fragment recording the visit of Bosporan ambassadors to Egypt in September 254 BC, we might never have suspected that there were close ties between the Ptolemaic court and the northernmost reaches of the Black Sea. It reads as follows:

Apollonios to Zenon greeting. As soon as you read this letter, send off to Ptolemais the chariots and the other carriage-animals (?) and the baggage-mules for the ambassadors from Pairisades and the delegates from Argos whom the King has sent to see the sights of the Arsinoite nome. And make sure that they do not arrive too late for the purpose: for at the time of writing this letter they have just this moment sailed up. Farewell. Year 32, Panemos 26, Mesore 1.¹

The Pairisades in question is generally agreed to have been Pairisades II, ruler of Bosporos (284/3-c. 245 BC).² The background and purpose of the mission has perplexed historians for more than seventy years, without any convincing explanations having been offered. In a recent paper I have eschewed direct answers, exploring instead the types of epigraphic and material evidence available for ambassadorial candidates from Bosporos in Egypt, and of Egyptian artefacts in Bosporos.³ Historians interested in resolving the diplomatic niceties have cited, but not been greatly concerned with, artefacts of Egyptian provenance, whose connection with the wider world of international relations has not seemed particularly convincing. Yet artefacts frequently incorporate more information than the simple witness of goods exchanged. The accumulating symptoms of knowledge about, and interest in, things Egyptian, by various communities in the Black Sea area, suggests that the relationship between the northern and southern “poles” of Hellenistic abstract geography deserve to be examined more systematically. In this paper I can only outline some of

the more readily accessible aspects of this relationship and draw preliminary conclusions about what such activities imply.⁴

Two recent discoveries, both in the Crimean peninsula, have revived scholarly interest in the character of relations between the Black Sea region and the Ptolemaic Kingdom of Egypt during the Hellenistic period. One is the wall painting from Nymphaion, discovered in 1984, which shows a magnificent oared ship clearly inscribed "Isis" on its bow.⁵ The other is an altar slab from Chersonesos, inscribed with a dedication by a man named Charmippos, son of Prytanis, to Sarapis, Isis, and Anoubis.⁶ The white marble slab, which was reused in a rock-cut water cistern, was found near the sacred area in the far north-eastern part of Chersonesos, during excavations there in 1993.

Preliminary studies of the Nymphaion fresco and of the Chersonesean dedication have highlighted the enormous gap that exists between such discrete types of new data, and scholarly perceptions of relations between the rulers of Bosphoros and the Ptolemies, indeed between all the communities neighbouring on the Black Sea and Egypt. The dedication from Chersonesos, which Vinogradov and Zolotarev have dated, on prosopographical and palaeographic grounds, to the middle of the 3rd century BC,⁷ is the earliest demonstrable evidence of the worship of Egyptian deities in the northern Pontic region. Whether we accept a date as early as c. 250 BC, or prefer a more conservative estimate, early in the 2nd century, the inscribed altar creates a much bolder perspective within which to view other epigraphic documents recording dedications to Ptolemaic Egyptian gods. These include the Istrian inscription that refers to the introduction of the cult of Sarapis in Istros, following advice from the oracle of Apollon at Kalchedon;⁸ and a series of four inscriptions recording dedications to Sarapis, Isis, and other gods from Mesembria.⁹ But we are still woefully ignorant about the social and cultural, much less political, climate in which these developments took place. The emergence of new patterns of behaviour in one area of the Pontic coast begs a whole raft of questions about other sites in the region, questions that we are simply not in a position to answer, at least not yet.

Both new discoveries challenge our assumptions of the low level of interaction between Pontic communities and their more distant neighbours in the southern Mediterranean. The excavator at Nymphaion, Nonna Grač, proposed that the ship labelled "Isis" was on a diplomatic mission from Ptolemaios II Philadelphos. Among the many graffiti distributed around the plastered walls of the sanctuary is the name Pairisades, which could correspond with the ruler of the Bosphoran state from 284/3-245 BC (*SEG* 38, 752; 39, 701). Ju.G. Vinogradov¹⁰ has argued that the "Isis" was a warship,¹¹ on a mission in winter or spring 254 BC, to prove the benevolent intentions of Ptolemaios II Philadelphos in the aftermath of two major naval defeats for Ptolemaic fleets, near Ephesos, at the hands of the Rhodians¹² and off the island of Kos, this time worsted by the Macedonian fleet of Antigonos Gonatas.¹³ Moreover, in his collaborative article with M.I. Zolotarev in the same publication, an ingenious

argument is developed to link this diplomatic tour with the establishment of the cult of Sarapis at Chersonesos.¹⁴ Such specific arguments are difficult to prove, particularly when the context of the relevant images and inscriptions has been presented to a scholarly audience only in selected form.¹⁵

Apart from the “Idris-Bell” papyrus fragment cited above, a magnificent black basalt portrait head from Pantikapaion, perhaps representing the deified Arsinoe II as Isis, is the most important single artefact that resembles a high-level gift or dedication.¹⁶ Ptolemaic portrait sculpture is notoriously hard to identify in the absence of inscriptions or cartouches. Leaving aside for a moment an important series of finger rings with Ptolemaic images,¹⁷ it is hard to point out any other material symptoms of *diplomatic* exchanges. The Black Sea rarely features in surviving Greek narrative accounts of the 3rd to 1st centuries BC. But the absence of other direct indicators of communication lines between Egypt and the Pontic Kingdoms should not be taken as evidence against recognised connections, even if these were formally recognised on a periodic rather than on a regular basis. The idea of “regular” diplomatic contacts is anachronistic, since it presupposes a bureaucratic infrastructure and modes of transportation that had not yet come into existence.

Notwithstanding this apparent absence of evidence, a closer look at the data available for different types of contacts between the Black Sea and Egypt reveals a wealth of information, only some of which can be included in a study of this length. Any one of the aspects touched on in the discussion that follows could have been developed independently. I therefore propose to outline some preliminary conclusions and suggest some new ways in which the evidence might be viewed.

Relations between the Ptolemies and northern Aegean communities in the 3rd century BC

We may not be in a position to evaluate Bosporan foreign relations, but a good deal of information is available concerning Ptolemaic international strategies directed towards the Aegean and beyond it, into the Black Sea region, during the 3rd and 2nd centuries BC. Much of the recent evidence has been collated by Hölbl in his *History of the Ptolemaic Empire*.¹⁸ Ptolemaic activities can be analysed at two levels that can be seen to have left different echoes in the material record. One is the inter-state level, which brought together rulers, their representatives, and leading members of key communities in the eastern Mediterranean. The Ptolemies avoided personal involvement in military affairs and preferred to delegate executive power to key functionaries. So, at the inter-state level, communications were largely indirect and rather diffuse, except when ambassadors travelled to Alexandria or Memphis.¹⁹ The manifest success enjoyed by the first three Ptolemies in bringing together and maintaining many different networks of contacts, and in fostering loyalty from so numerous a range of communities, suggests that, however we envis-

age contacts at inter-state level, there was a great deal more to them than the granting of symbolic favours.

The second order of communications is the local level, where both junior and senior Ptolemaic officials operated on a regular, permanent basis in a restricted locality, as in the case of garrison troops. These kinds of contacts are more likely to have generated communication between ordinary natives and resident soldiers or other officials. The Hellenistic monarchies established by Alexander's successors were unlike nation states in their origins, since royal power was predicated on the model set by Alexander himself. Ptolemaios Soter pursued a set of strategies outside Egypt whose objective was to enhance the wealth, resources, and capacities of his territorial assets, and to compete aggressively with his peers to attain a preponderant role among the Successors.²⁰ Personal connections, friendships, and gestures of support to particular communities played a very considerable part in cementing his success and that of his offspring.

Although Kyrenaika, on the one hand, and the Levantine coast (Coele Syria) with Cyprus on the other, constituted the fulcrum of Ptolemaios's energies, he consistently sought to establish a network of contacts in the Aegean. These began with a series of military campaigns, starting in 311 BC, aimed at "liberating" communities in Rough Kilikia, Lykia, and Karia, followed, in 295/4, with the acquisition of Cyprus, Sidon and Tyre, all of Lykia and Pamphylia. In 288-287 BC, a Ptolemaic garrison set up on Andros provided a base for the Athenian rebellion led by Kallias of Sphettos. By this time Ptolemaios had taken over leadership of the "Island League", founded by Antigonos Monophthalmos, and this became the mechanism through which Ptolemaios II Philadelphos conducted his political affairs with Aegean states and ensured co-operation between them and Ptolemaic garrison commanders.²¹ The Ptolemaic military network across the Aegean was strengthened yet more during the Chremonidean War (267-261 BC), when further garrisons were put in place by the Ptolemaic *strategos* Patroklos on Thera, at Itanos on Crete, on the Methana Peninsula, and at Koresia on Keos. The base on Keos was abandoned towards the end of the 3rd century, but the others persisted until 145 BC, and Ptolemaic-backed activities in south-western Asia Minor continued to drive local affairs until the early years of the 2nd century BC.²²

It is rather more difficult to discern Philadelphos' ambitions in the northern Aegean. The existence of a distinct strategy further north is best reflected in two major royal dedications on the island of Samothrake. Whereas most of the epigraphic data in the Aegean reflects the careers of Ptolemaic military personnel, the monumental dedications on the island of Samothrake illustrate a flamboyant style of personal patronage that has rarely survived outside Egypt and Cyprus. The Propylon of Ptolemaios II, which seems to have been modelled in part on the North Propylaia at Epidauros,²³ and the unique Rotunda of Queen Arsinoe, the tallest, if not the largest circular monument of its kind,²⁴ together provide a manifestation of Ptolemaic munificence, whose

precise purpose is hard to gauge. Neither construction can be dated with much precision. Frazer was reluctant to declare a more specific date span than the early years of Philadelphos' reign, c. 285-280 BC for the former,²⁵ while Roux has proposed the years immediately after 280 BC for the latter. The inscriptions on the two buildings are similar in style and likely to be near-contemporary.

Roux has provided a convincing explanation for the dedication of the Rotunda, although this requires us to reject Lysimachos in the missing space where the name of her spouse should be, and to substitute that of Ptolemaios.²⁶ Arsinoe sought sanctuary on the island after her new husband and half-brother, Ptolemaios Keraunos, had her two younger sons murdered. But Keraunos was unexpectedly killed, late in 280 or early 279 BC, when his army was defeated by an invading Celtic force, leaving Arsinoe free to return to Egypt (Just. 17. 2.6-7; 24.2-3). Once Arsinoe became Philadelphos' wife, she could express her gratitude for surviving her ordeals, and seek approval for the new marriage, by dedicating a significant religious structure at the shrine. Whatever the precise circumstances, both Ptolemaios II and his wife Arsinoe used the services of first class architects for the unusual designs of the two constructions; moreover, they employed local masons, probably from Thasos, since Thasian marble was used, as on other major Samothrakian monuments. But many of the structural details are thought to derive from Macedonia.²⁷

Lysimachos was an enthusiastic donor to the sanctuary of the Great Gods (*Syll.*³ 372). The formidable Arsinoe could have begun an enterprise in her own right whilst still married to Lysimachos. But Roux's interpretation makes much better sense. But whether we locate the siblings' dedications in the 280s or in the early 270s, they nevertheless bespeak a strong desire to compete among the benefactors of this particular sanctuary, at a time when the most prominent patrons were Argead princes.

When the Ptolemaic fleet was defeated by the Rhodians, and the Ptolemies lost their base on Andros, as well as their patronage of the "Island League" after 246 BC (developments that brought an end to the monuments generated by Ptolemaic patronage at Apollon's sanctuary on Delos),²⁸ Ptolemaios III Euergetes successfully sought to strengthen his naval position along the Thracian coast. Ptolemaic garrisons already existed at Ainos, Maroneia, perhaps Kypsela; Lesbos and Samothrake, and in the Hellespont around Lysimacheia and Sestos.²⁹ It is not known when and at what rate these northern bases were acquired. The honorary decrees for Hippomedon, *strategos* in the Hellespont and in Thrace under Euergetes (*Syll.*³ 502), and his near contemporary at the garrison in Maroneia, Epinikos (in a motion tabled by "king" Polychares, son of Leochares),³⁰ provide a clear reflection of the military and socio-economic duties performed by such individuals.³¹ Local interventions by successive Ptolemies during the 3rd century BC suggest that, although military successes during the Third Syrian War (246-241 BC) have highlighted the prominence of Ptolemaic military and diplomatic activities in the north-

ern Aegean during the latter half of the 3rd century, the concern shown by Egypt's rulers for a network of contacts in the north was not a new initiative. So the change of emphasis from a Cycladic focus to a North Aegean one, reflected in monuments honouring Ptolemaic officials, was one of degree and not kind.³² It is in this context that we may consider the kinds of initiatives at inter-state level that generated formal links between the Ptolemaic crown and Black Sea communities.

Two specific instances of Ptolemaic intervention in the Black Sea that can be followed, at least in outline, refer to Byzantion and Herakleia Pontike. Herakleia's historian, Memnon, described several examples of generosity on the part of Ptolemaios (usually assumed to mean Ptolemaios II),³³ enacted when he was at the height of his success. In one instance, the relevant fragment preserved by Photios refers to gifts of corn and marble, quarried at Prokonnesos, and intended for a temple dedicated to Herakles in the city.³⁴ Vinogradov has connected this gesture with the so-called "Monopoly War" between Byzantion, on the one hand, and Istros and Kallatis, on the other, for control of the *emporion* at Tomis.³⁵ In the resulting conflict, which is usually dated in the second half of the 250s, Byzantion waged war against Istros and Kallatis. Herakleia did not take sides, but offered to provide ambassadors to resolve the dispute.³⁶ The alignments make no coherent sense in trading terms, nor is Byzantion known to have intervened previously in the commercial affairs of a Pontic city.³⁷ So other factors must have been at work.

Alexandru Avram has recently re-examined this incident from two complementary perspectives. In a detailed review of the excerpts from Memnon's narrative relating to regional affairs in the 250s, he has reconstructed the wider ramifications of the "Monopoly War".³⁸ The commercial dispute between the two cities on the western coast of the Black Sea was, in his view, but one local symptom of a much larger power struggle between Ptolemaios II Philadelphos and the Seleukid king Antiochos II. The immediate context for tensions between the two rulers was the arrangement made by the Bithynian king Nikomedes I for his own succession. Ptolemaios Philadelphos, Antigonos II Gonatas of Macedonia, together with the cities of Byzantion, Herakleia, and Kios, were named to oversee the handover of power to his younger sons from a second marriage (*FGrH* 434: Memnon F14 [22] 1).

References to Ptolemaios's aid to individual cities can thus be interpreted as partial reflections of a naval initiative by the Ptolemaic fleet, primarily in support of Byzantion, which had come under siege from Antiochos II, probably in 255 BC.³⁹ Herakleia, which became a close ally in the coalition that has been dubbed the "Northern League" by modern scholars (*FGrH* 434: Memnon F13 [21] 1) also benefited from Philadelphos' support. A series of epigraphic documents provides some confirmation of the wider dimensions. An inscription that explicitly names [king] Antiochos, and which is found at Apollonia Pontike (perhaps it is honouring an Apollonian citizen), is more likely to be a decree of Mesembria.⁴⁰ Avram has drawn attention to documents of the same

period from Apollonia, Kallatis, and Istros that indicate close and friendly relations between these cities.⁴¹ He posits a broad alliance of western Pontic communities, whose support was courted by Antiochos II. According to this view, the latter aimed at driving a territorial wedge between the Ptolemaic sympathisers of the “Northern League” and their neighbours on the European side of the Straits, either to neutralise or to dilute the economic and military advantages that Philadelphos could derive from his alliance with the city that effectively controlled access to the Black Sea. One of the clearest indicators of Seleukid activity in south-eastern Thrace is a number of coin series that use Seleukid types, and were most likely intended as troop payments.⁴²

Byzantine local tradition credited Philadelphos with gifts of corn, military supplies (projectiles), money and land. The honours heaped on Ptolemaios seem out of all proportion to the benefactions, however generous. A cult was instituted in his name and an associated temple was erected (Dion.Byz. *Anaplous Bospori* 41 [ed. Güngerich]; *GGM* II, 34).⁴³ In another recent paper, Avram has shown that Memnon’s narrative conflates a series of gifts, which were bestowed at different times. Whereas those in kind fit well into the scenario of a siege, the reference to land grants points to an altogether different origin.⁴⁴ The most plausible occasion for significant land re-allocations was at the beginning of the 270s BC, in the immediate aftermath of the Celtic invasions and Seleukos I’s death.

The massed Celtic/Galatian irruptions that precipitated military assaults on Delphi and across southern Thrace between 280 and 278 BC constituted the most crucial juncture near the Straits during Philadelphos’ reign.⁴⁵ Not only was this an international crisis. The events coincided with one of the most important show-downs among the Successors themselves, when three of the key players, Lysimachos, Seleukos, and Ptolemaios Keraunos, were all eliminated within two years.⁴⁶ Bringmann and von Steuben, following Habicht,⁴⁷ situate the gifts for Herakleia in the same context, but, as Avram has shown, Philadelphos’ interventions were multiple. If the Ptolemaic fleet did sail up into the region more often than has been supposed, then stories about the capture of Ptolemaic warships by Celtic mercenaries of Mithridates of Pontos become easier to understand.⁴⁸

Notwithstanding the uncertainties about such fragmentary evidence, there are sufficient grounds for accepting the idea that the Ptolemaic fleet played an active role not only in the North Aegean, but also in the Hellespontine region, and along the Black Sea coasts, on several occasions during Philadelphos’ reign, certainly in the 270s and mid 250s (independently echoed in the Nymphaion fresco). Epigraphic evidence of royal officials, analogous to those in Aegean garrisons, is lacking in the Pontos, but they may be traceable in other ways.

Interpreting the arrival of new cults

Vinogradov argued that the decision of the Istrians to adopt the cult of Sarapis was a gesture of gratitude to Philadelphos, analogous, in some sense, to the temple dedicated in his memory by the Byzantines.⁴⁹ Such a theory can now be seen as untenable. Avram's redating and re-interpretation of the cult of Philadelphos at Byzantion shows that the introduction of this ritual was intimately connected with the city's sense of its geopolitical setting. Avram's reconstruction of the political divisions created by the siege of Byzantion at the hands of Antiochos II, with Istros in the pro-Seleukid grouping, make a political motive for the adoption of an Egyptian cult at Istros less likely. There are good reasons for believing that the appearance of the cults of Isis and Sarapis within specific communities was motivated by different factors and followed different trajectories from those that obtained for the Ptolemaic ruler cults. Hölbl notes some instances where the ruler cult coincided directly with the new Egyptian divinities. On Thera, for instance, the "priests of the king" were responsible for endowing the treasury of the island's sanctuary.⁵⁰ But the geographical distribution of cult activities associated with Ptolemaic rulers is closely associated with strong Ptolemaic political influence: Cyprus, Lesbos, Thera, Lykia, and Ainos, were all selected as locations for Ptolemaic garrisons.⁵¹ In Egypt the divine office of pharaoh created a ready foundation on which to build the image of a supra-human ruler, and one, moreover, who was the direct successor of the semi-divine Alexander. By this mechanism the Ptolemies subordinated the Egyptian priesthoods to their personal authority. But since it was the office that was divine, rulers did not supersede other gods.⁵² The relationship between instances of the ruler cult outside Egypt, and places where other Ptolemaic cults were established, deserves more detailed consideration than I can offer here.

Surveying the distribution of dedications to Egyptian gods of the Ptolemaic period in the Black Sea area, one of the most patent conclusions is that they do not represent the consequences of piecemeal, gradual cultural diffusion. This is as true of the Roman Imperial period in the region as it was of the previous three centuries. Direct evidence, in the form of inscriptions and artefacts, is limited.⁵³ Tacheva-Hitova's catalogue for the Roman provinces of Moesia Inferior and Thrace lists 51 items. 25 are Hellenistic inscriptions, nine Imperial ones. If we leave aside the items disseminated along the Danube *limes*, what is revealed is a concentration of finds at a small number of sites along the western coast, including: Dionysiopolis (3), Istros (2), Tomis (minimum 12), and Mesambria Pontike (5), with a distinct network of inland urban centres, in Imperial times, if not before (Nicomolis ad Istrum, Philippopolis, Augusta Traiana). This pattern echoes in outline the punctuated coastal distribution found on the south-western shores of Asia Minor,⁵⁴ and the evidence from the northern coast of the Black Sea seems to follow a similar scheme, although it becomes harder to discern.⁵⁵ What is worth emphasising is that the distribu-

tion reflected does not coincide with any given cultural configuration based on earlier civic traditions, such as affiliation with a metropolis, while the intervals between locations are more consistent with maritime routes, and many of the sites are major harbours.

Our surviving documents reflect various stages of consolidation of these cults and thus conceal much of what we would like to know about their origins. The Istrian document already referred to (*I.Histriae* 5) records a decision of the city council (and probably the people of Istros), to consult the oracle of Apollon at Kalchedon regarding the official adoption of the cult of Sarapis by the Istrians. More commonly, inscriptions are simply dedications made by named individuals to Sarapis, or to the triad of Sarapis, Isis and Anoubis, a combination that is found exclusively in the eastern Mediterranean and is, moreover, almost unknown in Alexandria.⁵⁶ Sarapis played a more significant role in the 3rd and 2nd centuries BC than Isis in the Aegean and adjacent areas.

Tacheva-Hitova surmised that the cults of Isis, Sarapis and Anoubis were introduced by “persons of Egyptian, Greek, or Anatolian origin”,⁵⁷ and that the cults were avoided by natives, particularly in rural areas. Such a conclusion presupposes that interest in these cults, and in things Egyptian, remained confined to small groups of outsiders. The institutionalisation of the cults by means of publicly sanctioned precincts (Hellenistic Tomis, Istros, and Mesembria; cf. Polyb. 4.39.5-6: Sarapeion on the Thracian side of the Bosphoros, near Byzantion, 219 BC), and the diffusion of Egyptian-style artefacts, discussed below, indicates that we need to think much more broadly and imaginatively about the ways in which these cults were perceived. The strong correlation between surviving traces of cult and major urban centres continued to be apparent in Roman Imperial times, not just in the Black Sea, but in the Empire as a whole.⁵⁸ The connection with centres of manufacture and exchange is probably more relevant than the issue of cultural preference, although such a factor must also have come into the equation.

One inscription from Tomis, dated to 160 AD, refers to the *oikos tōn Alexandreōn* (the “house of the Alexandreiana”) which has been interpreted as an association of Alexandrian merchants.⁵⁹ A trading network linking the Black Sea, especially its northern and western shores, with Alexandria via Rhodes is widely accepted on the basis of identified Rhodian amphora stamps.⁶⁰ Plausible connections have been made between the transportation of grain from the northern regions, financed by Rhodian bankers, and the traffic of wine in the opposite direction.⁶¹ Notwithstanding the clarity of this chain, reinforced as it was by a degree of direct Rhodian brinkmanship in 220 BC (when the Byzantines attempted to impose greater control over the shipping traffic), there are subsidiary patterns within the Black Sea zone, which suggest discrete distributions from given centres, rather than a general diffusion of bulk trade along the coastline. In other words, there are local patterns of distribution, or re-distribution, for bulk transports within the Black Sea region

that indicate dynamics additional to the ones we can readily identify from written evidence and artefact distributions. Odessos, Tomis and Istros seem to follow a common rhythm of bulk imports, whereas the nearby Kallatis shows a different pattern. Similarly, Olbia and Chersonesos seem to have shared in the same traffic, but the Bosporan centres a different set of variables.⁶² These second-order patterns show how supply issues were managed. But we have yet to explain how and why exotic objects (Hadra vases, watercolour painted urns, faience beads and ornaments, alabaster and glass vessels),⁶³ and exotic ideas, such as the cults of Sarapis, Isis and Anoubis, took root in these areas, where discreet, unmediated contacts with Egypt were comparatively rare.

As we have seen, the Ptolemies did not travel around their dominions. Their representatives were based principally in Aegean military bases. Although Ptolemaic officials are much harder to document in this region than they are in the Aegean, the appearance of artefacts associated elsewhere with high ranking individuals – notably the series of finger rings studied by Treister⁶⁴ – shows that there is no reason to doubt that the diplomatic network extended as far as the Bosporan Kingdom; and this regardless of whether the Ptolemaic agents further north were Alexandrian Greeks, or, more likely, distinguished local men, who acted as *proxenoi* of the Egyptian crown.⁶⁵ Given the pro-Seleukid alignment of many western Pontic communities in the middle decades of the 3rd century BC, the Bosporan élite represented a potentially valuable source of allies for Philadelphos, and the ambassadors to Egypt in 254 BC demonstrate the success of this strategy. The finger rings can then be seen as demonstrable symbols of the functions conferred to them, not prospective gifts.⁶⁶

What is less easily explained is the curiosity about Egyptian cults and culture, and the taste for Egyptianizing artefacts, in regions as distant as the North Aegean coast and the Black Sea. Not only do we find minor items, such as finger rings and personal ornaments made of faience, which reproduce exotic designs, but Egyptian-looking ceramics and glass. Why Egyptian, and not, for example, Persian, or Mesopotamian, or Anatolian cults, artefacts, and imagery? Perhaps the modern obsession with things Egyptian has made the growth of ancient interest in these topics and items, from the early Hellenistic age onwards, seem less strange than they might otherwise appear. A metropolitan vogue for Alexandrian themes is easier to comprehend in social circles where the new poetic trends emanating from the Ptolemaic capital are known to have been popular – in the older cities of mainland Greece and Magna Graecia.⁶⁷ But it is harder to demonstrate a similar propensity in Olbia, or Pantikapaion, Istros, or Chersonesos, where cult inscriptions, Egyptian glass, faience, and Alexandrian ceramics have been found. The adoption of Egyptian cults makes little sense unless a cultural context already existed in which such ideas would find fertile ground. In the Aegean, the presence of Egyptian or Egyptianizing artefacts and cultural phenomena causes less surprise, because their existence can be mapped onto the Ptolemaic politico-

military network. But this can only be part of the story. In recent years, the distinction between *Ptolemaica*, items manifestly connected with activity of the said period, and *Aegyptiaca*, native objects, such as *ushabti*, which circulated alongside the former, has been re-emphasised.⁶⁸ This underscores the fact that the wide range of artefacts previously seen as exemplifying a single phenomenon probably represents a complex of inter-related ideas. In antiquity knowledge about other cultures was disseminated through travellers, be they merchants, mercenaries, or ambassadors, and, in an indirect way, through artefacts. Knowledge about other cultures was also desirable to those who made knowledge itself a speciality, namely teachers, philosophers, and craftsmen. This latter group of people is less often discussed in connection with cultural transmission than are the former. Yet, in ancient times, knowledge was not subdivided. Knowledge about religion was not separated from knowledge about the universe, and especially technology. Wisdom about all manner of things was seen by Greek thinkers as emanating from Egypt, but the traffic in knowledge was a two-way process.⁶⁹ The need, in early Ptolemaic times, to fuse different streams of knowledge came to be embodied in new divine concepts, personified in Sarapis and the hellenised form of Isis. Michel Malaise has expressed the challenge that this posed for Greek officials and Egyptian priests:

Pour comprendre l'effort théologique fait en direction des Grecs, il faut prendre en compte deux réalités psychologiques. En premier lieu, du moins dans certains domaines, comme en matière de religion, de divination ou de médecine, les Égyptiens étaient investis aux yeux des Grecs d'une supériorité, ou à tout le moins, d'une antériorité, qui les faisaient considérer par l'occupant comme estimables en ces matières. Ensuite, les Égyptiens étaient désireux de ne se pas s'en laisser remontrer par les colons; et leur clergé avait tout avantage à intéresser les Grecs à leur cultes pour obtenir d'eux les concessions économiques nécessaire à leurs sanctuaires.⁷⁰

Greek merchants and craftsmen on the one hand, and Egyptian priests on the other, had a vested interest in making common ground, in order to carry on their respective affairs. This mutual interest has increasingly been recognised as a principal factor in the emergence of new cults that made Egyptian wisdom available to other Mediterranean peoples.⁷¹ But even here there is a mysterious connection with the Black Sea. Tacitus (*Hist.* 4.83.2) and Clement of Alexandria (*Protr.* 4.48.2) refer to a colossal statue of Sarapis that was brought from Sinope to a sanctuary in Rhakotis, Alexandria, in response to Philadelphos' gift of grain during a scarcity.⁷²

Glass technology in the North Aegean and Pontic areas

It would obviously be desirable to find some body of material data that could provide a more systematic, or at least wider-ranging perspective than is provided by inscriptions and artefacts explicitly identifiable with the new cults. Most standard archaeological evidence is of no particular use in this sort of enquiry, because of its very ubiquity. What is needed in this context are regular, easily identifiable items. One of the most feasible candidates is the dissemination of glass technology. Of the many commodities that link Egypt and the Levant with the Black Sea for most of antiquity two in particular stand out. Moreover, they are interconnected. One is glass, and its close relative, faience. The other is the spice trade. The wealthiest tombs of the Bosporan Kingdom, Thrace, Kolchis, and Anatolia frequently contain alabaster jars that would have contained myrrh and perhaps other preserving spices (Hdt. 3. 20.1; Plin. *HN* 9.13).⁷³ Glass alabastra are among the earliest examples of core-formed glass vessels found in the cemeteries of Pantikapaion, Olbia, and many coastal and inland sites around the Black Sea.⁷⁴ The miniature form of these vessels suggests that they probably contained perfumed oils rather than spices. But there is a striking coincidence of alabaster vessels and glass ones, miniature or otherwise, in the tombs of the better-off in many different parts of the Black Sea's hinterland and elsewhere.⁷⁵ This strongly suggests that the contents of the alabaster and glass vases – at least of the ones in burials – were connected. Arabian spices were certainly being shipped from the Levantine coasts to the Aegean from the 6th century BC onwards, and we would expect demand for such spices, or variations on them, to have been used as economic resources allowed.⁷⁶

The arrival of alabaster and glass vessels in the Pontic region set up an expectation.⁷⁷ The demand for such containers, and their contents, was unlikely to diminish. Indeed, what we find, in some cases at least, is a dramatic increase in the number of items buried with some deceased individuals. At Aineia, south of Thessaloniki, three tombs dated by the excavator to the third quarter of the 4th century BC are exceptional. Tomb III contained a total of 26 vessels: 18 plain stone, five gilt, two glass, and one grey faience.⁷⁸ Tomb II contained eight plain alabaster forms;⁷⁹ five glass alabastra of "Phoenician type", and two gilt stone vessels. Admittedly, this example is from Macedonia. Glass products became very prominent in Macedonia at this time.

Despoina Ignatiadou has recently argued that a very fine, colourless type of glass was produced in Macedonia during a comparatively short period, between the second half of the 4th and first half of the 3rd centuries BC.⁸⁰ There are some cogent reasons for her thesis. A range of specialised products using glass inlays, notably the ornamental fittings of wooden funerary couches, has been found at a number of major Macedonian centres. These items were intrinsically delicate, and unsuitable for long distance transportation. They are the kinds of products best made as close as possible to their place of use. They

include fragments from Tomb I in the multiple mound already referred to at Aineia.⁸¹ Similar elements were found in the near contemporary Tomb II⁸² and Tomb III (pls. 42-43), as well as from the pyre in Mound B.⁸³ The committal of such expensive items to the fire is a stark reminder of the scale of conspicuous consumption practised in the highest circles of Macedonian society.

The best parallels for these glass inlaid couches come from Scythia, namely the bier from the Kul' Oba tumulus, dating from the first half of the 4th century BC, two from the second half of the century (Bol'shaja Bliznica and Ak-Burun),⁸⁴ and one couch from Tarentum belonging with this later pair.

Knowledge networks

Glassmaking is a complex process, which involves specialist knowledge of a wide range of mineral and or organic ingredients.⁸⁵ The ingredients themselves, including the right kind of sand, are not easy to obtain. The finest, most translucent, and colourless glass was made using natron (hydrated sodium carbonate), the best-known source of which was the Wadi Natron in Egypt.⁸⁶ Natron had a variety of uses other than a primary constituent of glass production. It was used in medicine, as a detergent, as an embalming ingredient, and as a dye component. This explains why knowledge about glass-making was connected to other branches of learning with which the Egyptians were explicitly associated. The Ahiquar customs account published by Briant and Descat highlights the importance of natron exports to the Aegean, since it is the only commodity explicitly named, perhaps the only one taxed, and transhipped by Ionian merchantmen.⁸⁷

At present, there is still much controversy about where glass was actually made from Egyptian natron and other forms of soda, usually plant ash, with varying levels of magnesium oxide, soda, potash and silicates as trace elements.⁸⁸ The comparative lack of systematic exploration of possible production sites, the ephemeral nature of re-cyclable production debris, and the complexity of the analytical evidence has made it difficult to demonstrate the processes of production in a transparent way. Many mass-produced core-formed items, the commonest type of early vessel, may well have been made on the Levantine coast, though workshops somewhere in the eastern Aegean are still postulated.⁸⁹ Ingots of raw glass were exported from Egypt and the Syro-Palestinian coast for re-use in local workshops. In the 3rd century BC, beads made from such ingots have been documented as far afield as Provence and Britain, as well as Delos.⁹⁰ More ambitious items, including vessels and inlays, could either have been made from re-melted and coloured ingot glass, or composed independently from different constituents as was probably the case on Rhodos.⁹¹ Either process requires extensive skills and knowledge that can only have been acquired directly from master craftsmen or through a combination of mentoring and experimentation. A series of physico-chemical analyses is currently in progress to try and determine the scope and modali-

ties of glass production.⁹² One of the outstanding issues concerns the volume of glass production. The huge quantities of surviving production debris from Roman Imperial times at sites such as the Wadi Natrun make it difficult to detect the rate at which large-scale production evolved. Colourless glass and mould-made vessels, sometimes in complex forms, constitute radical technical developments that emerged during the first half of the first millennium BC.⁹³ Ingots from shipwrecks indicate that between the 3rd and 1st centuries BC the scale of production was considerable, if an individual shipload might contain several hundred kilograms of raw glass.⁹⁴

There was also at least one other source of natron in the ancient East Mediterranean, in Lake Chalastra in eastern Macedonia. This may well be the marshy area of modern Pikrolimni, identified with ancient Moryllos.⁹⁵ If this were the case, then we may well have an independent tradition of glass-making in the region, using local soda in recipes evolved from Aegean, and ultimately Near Eastern sources. Véronique Arveiller-Dulong and Marie-Dominique Nenna believe that eastern craftsmen may have been employed by Macedonian kings to create the ambitious and highly specialised items found in royal and elite burials.⁹⁶ Certainly, the taste for Achaemenid-style products before Alexander the Great's reign is connected with the commissioning of work from outside specialists. What we do not know is whether, and how soon, the techniques and recipes were adopted by local craftsmen.

We do know that glass beads, using a recipe similar to Egyptian ones, that is using a similar soda glass, were being manufactured on the northern shores of the Black Sea from the middle of the 6th century BC if not earlier. The best evidence comes from Jagorlyk, a settlement on the shores of a *liman* south-east of Olbia and the Bug Estuary.⁹⁷ Leaving aside the sources of core-formed vessels, which may have been produced in several Aegean or Levantine centres, moulded vessels from Black Sea sites include Achaemenid shapes,⁹⁸ as well as the gold "sandwich" glass known to have been made on Rhodos as well, it seems, as Alexandria.⁹⁹ Platz-Horster has recently re-stated the case for the local production of several other highly specialised glass vessels, including the amphora (0.596 m high) from the vicinity of Olbia, now in Berlin,¹⁰⁰ as well as the "sandwich" glass bowls, on the grounds that these have no obvious parallel in Alexandria. Kunina has presented a summary of the ancient evidence for glass manufacture in the northern Black Sea area. Much of this dates from the 3rd and 4th centuries AD. But there seems to be growing evidence for the manufacture of complex glass artefacts, whether from imported ingots,¹⁰¹ or from composite materials, in the previous three centuries. Touriaeff noted the very large numbers of Egyptian and Egyptianizing artefacts discovered in and around the Crimean Peninsula, and extending widely over the steppe regions, even as far as Finland, but found particularly in the 4th and 3rd century BC Bosphoran tombs on Mount Mithridates in Kerch (ancient Pantikapaion): "... la partie est de la Crimée et les régions limitrophes sont une véritable mine d'antiquités orientales ...".¹⁰² Of particular interest for this

enquiry is the appearance of faience items that adapt Egyptian designs to native Bosphoran templates, such as the kneeling figures resembling sculpted Scythians.¹⁰³ Local products can be distinguished on technical grounds, as well as design and workmanship, since the colour of the faience is identifiably different from imported Egyptian ones.¹⁰⁴

What are we to conclude from this evidence about contacts between the Black Sea and the Ptolemaic Kingdom? The Pontic regions were linked to the Levant and Egypt by a series of economic networks, based on the demand for commodities and minerals that were not available in the north. The links were maintained by the knowledge of what was available overseas and the perceived benefits that these commodities conferred. Various candidates qualify as potential carriers. The products themselves, the glass vessels, the distinctive blue faience ornaments, and the pungent spices, created the reasons for wanting to know more about the distant regions with which they were connected. For some, the knowledge sought was of a technical kind, directly associated with the manufacture of glass and faience artefacts. For others Egyptian wisdom had wider ramifications, since knowledge about cult and knowledge about technical secrets were indissolubly interconnected. What we would still like to know is where and how the “mentoring” process took place, through which the knowledge and techniques were passed on.

We know little about the articulation of these networks in the 6th and 5th centuries BC, when the manufactured products were technologically restricted. But thereafter the picture began to change, so that by the second half the 4th century the finest products were extremely ambitious, and the number of manufacturing centres is now known to have included Macedonian workshops, as well as active Bosphoran ones, particularly in and around Pantikapaion. Published evidence from the 3rd and 2nd centuries suggests that specialisation continued to develop at key regional centres, including Olbia and Pantikapaion. Glassmaking has traditionally been a technique with closely guarded secrets, passed on within family networks. It is likely that glassmakers were immigrant specialists and even more likely that they were among the votaries of Sarapis and Isis. The co-incidence of glassmaking and of Egyptian cults is especially striking in the Bosphoran Kingdom.¹⁰⁵ The distribution of foreign craftsmen in relation to the pattern of Egyptian cults does seem to offer fruitful possibilities for future research.

Notes

- 1 Skeat 1974, 62-66 = *P.London* 7, 1973, 21st September 254 BC.
- 2 Archibald 2004, 1-2 with references.
- 3 Archibald 2004, 5-12.
- 4 Alexandru Avram sent offprints of two of his recent papers (2003, 2004) in time for me to be able to digest their contents whilst editing my contribution. These latter provide detailed discussion of some of the documents referred to briefly in my own paper. I would like to express my warmest thanks to Alexandru Avram,

whose epigraphic research has added a robust foundation for interpreting the historical context of activities described here. I also want to thank my colleague in Liverpool, John Kenyon Davies, for his comments on an earlier draft. Any errors that persist are entirely my own.

- 5 Grač 1984, 1987 and 1989 (*non vidi*); Vinogradov 1999; Höckmann 1999; Sokolova 2000; Murray 2001.
- 6 Vinogradov & Zolotarev 1999a, 360-365.
- 7 Vinogradov & Zolotarev 1999a, 360.
- 8 Pippidi 1964, 111; *SEG* 24, 1091; *I.Histriae* 5; Dunand 1973, 99-115; Tacheva-Hitova 1983, 15, cat. no. 22; 37-41; Parke 1985, 179; Vinogradov 1999, 373-376, with detailed prosopographical arguments to support Pippidi's dating in the mid 3rd century BC. See, however, the comments of the editors, *SEG* 50, 691, who cite Avram's date for the Histrian dedication in the 2nd century BC (*I.Histriae* 5) and seem inclined to follow this later dating, cf. *ibid.* paragraph 682, 661. See also now Bricault 2001, 48-53, and map p. 49 (XII), who expresses surprise that 3rd century BC graffiti on amphorae from Chersonesos and Kerkinitis, which have been connected with the cult of Isis, antedate by a considerable margin the formal epigraphic confirmation of the established cult, from the 2nd century onwards.
- 9 Tacheva-Hitova 1983, cat. nos. 42-45 with earlier bibliography and pls. XIII-XIV.
- 10 Vinogradov 1999, 284-298.
- 11 Cf. Höckmann 1999, 303-323; Murray 2001.
- 12 Will 2003, I, 234-238.
- 13 This engagement has proved hard to date accurately. It could have occurred near the end of the Chremonidean War, that is, in 261 BC (Heinen 1972, 193-197), or in 255 BC (Hammond & Walbank 1988, 595-599; cf. Hölbl 2001, 44 and n. 60).
- 14 Vinogradov & Zolotarev 1999a, 372-373.
- 15 Sokolova 2000 for a general description of the excavated sanctuary complex; Höckmann 1999 on the graffiti. These are preliminary studies only and full evaluation will have to await systematic publication of the data.
- 16 Pantikapaion basalt portrait head: Hermitage Inv. 3099; Lapis & Matie 1969, 127, cat. no. 143, fig. 90 with bibliography; Touriaeff 1911, 27, fig. 14; Treister 1985, 132 and n. 64; Vinogradov & Zolotarev 1999a, 366, fig. 2. This portrait head, as Treister noted, has been missed out of major catalogues of Ptolemaic sculpture, and is not therefore as well known as the full length statue, also traditionally identified with Arsinoe II, which has recently been re-attributed by Sally-Ann Ashton to Kleopatra VII (Ashton 2001, 114, no. 63 with extensive bibliography, St. Petersburg Inv. 3936; reproduced in Walker & Higgs 2001, 160, no. 160).
- 17 Treister 1985, 126-131.
- 18 Hölbl 2001.
- 19 As illustrated in the "Idris-Bell" papyrus; for mercenaries see Avram 2004, 833, n. 37.
- 20 Will 2003, I, 155-200.
- 21 Bagnall 1976, 80-88, 137-58; Hölbl 2001, 19, 23-24, 28-29, 38, with further references.
- 22 Hölbl 2001, 40-45.
- 23 Frazer 1990, 143, 147-148.
- 24 Roux 1992, 92-230.
- 25 Frazer 1990, 143-144, 224-225, 232-235.

- 26 Roux 1992, 231-235; contra Fraser 1960, 48-50, no. 10.
- 27 Frazer 1990, 179-189; 230-231; Roux 1992, 100, 109; cf. also Thompson 1982.
- 28 Will 2003, I, 234-241.
- 29 Polyb. 5.34.7-8; Bagnall 1976, 159-75; *OGIS* 54, the Adoulis inscription.
- 30 Gauthier 1979, 80, n. 10; 88-89.
- 31 Gauthier 1979.
- 32 Bagnall 1976, 159-162 for inscriptions; Gauthier 1979, 83; Vinogradov 1999, 377; Hölbl 2001, 49-50.
- 33 According to the Suda, Nymphis, whose history of Herakleia formed Memnon's main source, took his story down as far as 247/6, the year of Euergetes' accession (*FGrH* 434: Memnon T1). Avram 2003, 1185-1187; Avram 2004, 829, n. 6.
- 34 *FGrH* 434: Memnon F17; Bringmann & von Steuben 1995, cat. no. 243 [L].
- 35 Vinogradov 1999, 283-301; Vinogradov & Zolotarev 1999a, 377-378; Avram 2003, 1188-1203, 1205-1207; on the "Monopoly War"; Avram 2004, 828-830.
- 36 *FGrH* 434: Memnon F13; Ager 1996, 108, no. 34; Pippidi 1962; Avram 2001, 607-632.
- 37 Avram 2003, 1181-1184; 1200-1201.
- 38 Avram 2003.
- 39 *FGrH* 434: Memnon F15; Polyaen. *Strat.* 4.16; Avram 2003, 1184-1189, 1201-1202, 1208-1213.
- 40 *IGBulg* 1², 388; Avram 2003, 1190-1193.
- 41 Avram 2003, 1193-1200.
- 42 Avram 2003, 1201-1203 and nn. 53-59; Will 2003, I, 247-248.
- 43 For the temple at Byzantion to the deified Philadelphos: Bringmann & von Steuben 1995, no. 239 [L] (dated 280/79, following Habicht 1970, 116); Vinogradov 1999, 283-290; Vinogradov & Zolotarev 1999a, 376-379 (250s); Will (2003, 147) and Hölbl (2001, 40-41), date the gifts and the cult to 271/70 BC. But see now Avram 2004, 830, 833 (c. 254 BC). Hölbl 2001, 92-98, for the development of the Ptolemaic ruler cult, with 272/71 as the date when the living rulers, the *Theoi Adelphoi*, were joined to Alexander and to the deceased ruling couple, the *Theoi Soteres*.
- 44 Avram 2004, 829-831.
- 45 Mitchell 1993, 13-20; Chaniotis 2005, 220-221, 228, 230, 235-240.
- 46 Will 2003, I, 139-144; cf. Treister 1985, 137-138.
- 47 1970, 116-21.
- 48 Steph.Byz. s.v. Ἀνκυρα, *FGrH* 740: Apollonios of Aphrodisias F14; Mitchell 1993, 20.
- 49 Vinogradov 1999, 290; Vinogradov & Zolotarev 1999a, 377-378; Will 2003, I, 200-206, on the background of ruler cults.
- 50 Hölbl 2001, 96, 101 and n. 139.
- 51 Hölbl 2001, 50 and n. 81, 96; cf. *SEG* 49, 1068 [Maroneia] and 1207 [Crete].
- 52 Hölbl 2001, 92-98.
- 53 Bricault 2000a, 190-191, 198-209; see now Bricault 2001, 28-35, and map p. 29 (VIII) on the Black Sea evidence, with extensive bibliography, p. 35 and map XIII for the distribution in western Anatolia.
- 54 Bricault 2001, 209 and map p. 208.
- 55 Kobylina 1976, 34-52, 53-65; Šurgaya 1979, 453-455.
- 56 Bricault 2000a, 201.
- 57 Tacheva-Hitova 1983, 67.
- 58 Malaise 2004, 480.

- 59 Tacheva-Hitova 1983, 13, no. 17.
 60 Badal'janc 1999; Lund 1999.
 61 Lund 1999, 201 and n. 49 with further references.
 62 Lawall 2005a, 222.
 63 Touriaeff 1911; Toncheva 1972; Šurgaya 1979, 454-455; Treister 1985, 130-137; Lungu 1999-2000; Lungu & Trohani 2000; Archibald 2004, 11 with further references.
 64 1985, 126-31; cf. Kunina 1997, cat. no. 69.
 65 Archibald 2004, 5-12.
 66 Treister 1985, 131, referring to the royal images enjoined by the Canopus Decree (OGIS 56): Hölbl 2001, 105-11; cf. Walker & Higgs 2001, cat. nos. 59-66, 156-158, 174-176, seal impressions; nos. 32, 33, 35, 38-45, 153, 195, rings.
 67 See the contributions to Van t'Dack, van Dessel & van Gucht 1983.
 68 Touriaeff 1911, 21-22; Malaise 2004, 484, 5-6.
 69 Mertens 1995, xi-clxix; Wilson 2002, especially 319, referring to Macedonian/Thracian metallurgical knowledge transferred to Egypt.
 70 Malaise 2000, 14.
 71 Yoyotte 1998, especially 218.
 72 Bringmann & von Steuben 1995, 278-9, cat. no. 244 [L]; G. Clerc & J. Leclant, *LIMC* VII.I (1994) 666-667 with bibl.; Fraser 1972, I, 246; II, 83 and n. 190; in general Stambaugh 1972; Dunand 1973; Takács 1995.
 73 Amyx 1958, 213.
 74 E.g. Kunina 1997, cat. nos. 2-5, 7, 9-16; Minchev 1980.
 75 Toncheva 1972; Tacheva-Hitova 1983, 57 and n. 133; Archibald 1998, 165, 173 for examples from central Thrace; Tsetskhladze 1999, 53, 64-65; Pichvnari: Hayes 1975, 5, 15; Vickers & Kakhidze 2004, 211-212, 222.
 76 Van Alfen 2002, 33-67 with refs.; 257-259 on alabaster; Reger 2005a on perfumes.
 77 Cf. Foxhall 1998, 303.
 78 Vokotopoulou 1990, 62-64, nos. 16-41; nos. 37-41 gilded.
 79 Vokotopoulou 1990, 26-27: all of very white stone; cf. also Vergina III, Andronikos 1984, 77 figs. 37-38.
 80 Ignatiadou 2002a.
 81 Fragments of glass and ivory: Vokotopoulou 1990, pl. 9a, especially the sheet and fragments of eye and leaf pattern, pl. 9γ, δ.
 82 Vokotopoulou 1990, pls. 18-20.
 83 Vokotopoulou 1990, pls. 51-53, especially pls. 51στ and 52γ; ill. fig. 43, p. 83.
 84 Ignatiadou 2002a, 20 and n. 34.
 85 Henderson 2000, chapter 3: 24-42; 52-60.
 86 Nenna, Picon, Thilion-Merle & Vichy 2005.
 87 Briant & Descat 1998, 80.
 88 Henderson 2000, 57-60.
 89 Stern 1999, 37; Van Alfen 2002, 243-252 with bibliography.
 90 Nenna 1998, 695-696.
 91 Weinberg 1969 and 1983; Rehren, Spencer & Triantaphyllidis 2005.
 92 Various contributions in Cool 2005.
 93 Schiering 1991, 14, 35, 138.
 94 Nenna 1998, 700.
 95 Ignatiadou 2002b; Ignatiadou, Dotsika, Kouras & Maniatis 2005.

- 96 Arveiller-Dulong & Nenna 2000, 17; cf. Nenna 1998, 696.
- 97 Ostroverchov 1974; 1981.
- 98 Kunina 1997, cat. no. 47; Simonenko 2003.
- 99 Kunina 1997, cat. nos. 48 and 49; Weinberg 1969; 1983.
- 100 Platz-Horster 2002, 95, 102-103.
- 101 Platz-Horster 2002, 103.
- 102 Touriaeff 1911, 24.
- 103 Touriaeff 1911, 30, figs. 22 and 23.
- 104 Touriaeff 1911, 30-31.
- 105 Kobylina 1976, 34-52; 53; and maps.