

ANCIENT FISHING AND
FISH PROCESSING
IN THE BLACK SEA REGION

Edited by
Tønnes Bekker-Nielsen

AARHUS UNIVERSITY PRESS

ANCIENT FISHING AND FISH PROCESSING IN THE
BLACK SEA REGION

Proceedings of an interdisciplinary workshop on marine resources
and trade in fish products in the Black Sea region in antiquity,
University of Southern Denmark, Esbjerg, April 4-5, 2003.

Copyright: Aarhus University Press, 2005

Cover design by Jakob Munk Højte and Lotte Bruun Rasmussen

Mosaic with scene of fishermen at sea from a tomb in the catacomb
of Hermes in Hadrumetum (Sousse Museum, inv.no. 10.455). Late
second century AD. 320 x 280 cm. Photo: Gilles Mermet.

Printed in Gylling by Narayana Press

ISBN 87 7934 096 2

AARHUS UNIVERSITY PRESS

Langelandsgade 177

DK-8200 Aarhus N

73 Lime Walk

Headington, Oxford OX2 7AD

Box 511

Oakville, CT 06779

www.unipress.au.dk

The publication of this volume has been made possible by a generous
grant from the Danish National Research Foundation

Danish National Research Foundation's

Centre for Black Sea Studies

Building 328

University of Aarhus

DK-8000 Aarhus C

www.pontos.dk



Fish and Money: Numismatic Evidence for Black Sea Fishing

Vladimir F. Stolba

Human beings – both ancient and modern – have not only associated the word “fish” with food, but also, to a very great degree, with a marketable commodity linked with money. For such a sea-oriented people as the Greeks, who established settlements on the shores of the Mediterranean and Pontos, and whose dependence on the waterways and marine resources was extraordinary, this association must have been particularly strong. We may assume, therefore, that it was not an inverse association. The sporadic appearance of fish on coins, or as a coin type all around the Greek world, would also suggest that we are not dealing with a fortuitous phenomenon.

In terms of the ancient Black Sea, where the written sources on economic conditions in general – and fishery in particular – are often very scarce, the numismatic data may provide an additional piece of evidence. It is generally accepted that in Archaic and Classical times the typology of the Greek coins was chiefly of a religious character, which it maintained right into the early Hellenistic period. Despite this fact there is a fairly large group of types related one way or another to the local resources that secured a reputation or prosperity for the specific city or entire region.¹ Two of the many examples are the barley ear and barley seeds on the well-known silver specimens of Metapontos and Leontinoi, respectively (Fig. 1.1-2). The grain ear on the fourth-century BC gold staters of Pantikapaion and the wheat seed on the contemporary coins of Phanagoria (Fig. 1.3-4), are also totally consistent with what we learn from Athenian orators (Dem. 20.31-33; Din. 1.43; Isocr. 17.57) about the role of the Bosporos in the international grain trade. An appeal to marine resources was no exception here, and the ubiquitous tunny-fish on the electrum and silver of Kyzikos may serve as an example (Fig. 1.5,11). Perhaps even more explicitly this occurs in the coinage of Gela in southern Sicily where we find a young male head surrounded by fishes representing a local river god (Fig. 1.9).

On the other hand, some emblems, which at first glance seem to belong to the same group, should perhaps not be regarded as such. For instance, the eagle-on-the dolphin symbol occurring on the coins of Sinope, Istros, and Olbia (Fig. 1.6-8) can hardly be seen as an allusion to the marine resources of these cities, but perhaps to their coastal position.²

More than twenty years ago P.O. Karyškovskij, who discussed this issue at length, was inclined to see the dolphin and the eagle as attributes of Apollo



Fig. 1. Greek coins of the Classical and Hellenistic periods. 1) Metapontos, AR; 2) Leontinoi, AR; 3) Pantikapaion, AU; 4) Phanagoria, AR; 5) Kyzikos, EL; 6) Olbia, AE; 7) Sinope, AR; 8) Histria, AR; 9) Gela, AR; 10) Akragas, AR; 11) Kyzikos, AR. (1-2, 11: Gorny & Mosch auctions (126, lot No. 1101; 122, lot No. 1099; 121, lot No. 164), photo courtesy of the Gorny & Mosch Giessener Münzhandlung; 4: in commerce; 3, 6-8: Danish National Museum, Collection of Coins and Medals, SNG Cop. 6.20, 6.75, 18.281, 6.191, photo courtesy of the Museum; 5: CNG auction 14.01.2003, lot No. 301, photo courtesy of the Classical Numismatic Group, Inc.; 9-10: after Kraay 1976, pls. 48.826 and 46.797).

Delphinios and of Zeus, respectively.³ But semantically speaking, the question is rather intricate, since a similar design, sometimes with a fish instead of a dolphin, occurs both in the Scythian and Graeco-Scythian art, and was also distributed far beyond areas of Greek culture as such. Perhaps it should be understood as one of the main cosmological symbols of the ancient inhabitants of Eurasia, where the eagle seemingly represents the celestial or the upper-world whereas the dolphin/fish could represent the water, i.e. the *underworld*.⁴ Thus, for the Indo-Europeans a combination of the two could mean, as suggested by some scholars, a sacred marriage alliance between the sky, as a male substance, and the terrestrial or aquatic element, as a female substance, something that ultimately guaranteed the existence of everything.⁵ Describing the universe by means of a zoological code might though imply both the unity and the conflict of opposing principles. In this sense it is to some extent semantically similar to the well-known scenes of a wild beast attacking a herbivore.⁶ Indeed, the Greeks might interpret this notion in a slightly different way, correlating these two elements with the sacred images with which they were more familiar. To illustrate this explanation, one might refer to the numismatic parallel from south-western Sicily, namely the coinage of the non-coastal *polis* of Akragas. Not long before its destruction by the Carthaginians, the city struck very elegant dekadrachms, the design of which was apparently intended to celebrate the Olympic victory of the Akragantine Exainetos in 412 BC.⁷ On the obverse of these coins, the chariot of Helios runs between the sky and the sea, which are represented by an eagle and a crab, correspondingly (Fig. 1.10).

In order to avoid any further confusion, however, we shall concentrate henceforth only on the fish, leaving aside numerous representations of dolphins. The evidence is organised geographically starting from the north-western corner of the Black Sea and following its shores clock-wise.

1. *Karkinitis*

Karkinitian coins (Fig. 2.1-3) revealing a fish as a main coin type are not numerous. It is not long ago, that as a result of excavations of 1980 to 1982 in Eupatoria, they were introduced to the scientific world.⁸ All the specimens are bronze and made in the cast technique. This peculiarity strongly indicates the influence from the neighbouring city of Olbia, where this distinctive technique, foreign to the Greek world as such, was employed from the sixth century BC onwards. Archaeological context and parallels in the numismatics of Olbia date the issues reliably to the early fifth century BC. According to shape they may be divided into two main groups.

The figured cast specimens in the shape of a fish constitute the first of these groups. In fact, only one side of the casts represents the fish in relief, while the other having a long horizontal rib resembles rather an arrowhead (Fig. 2.1).

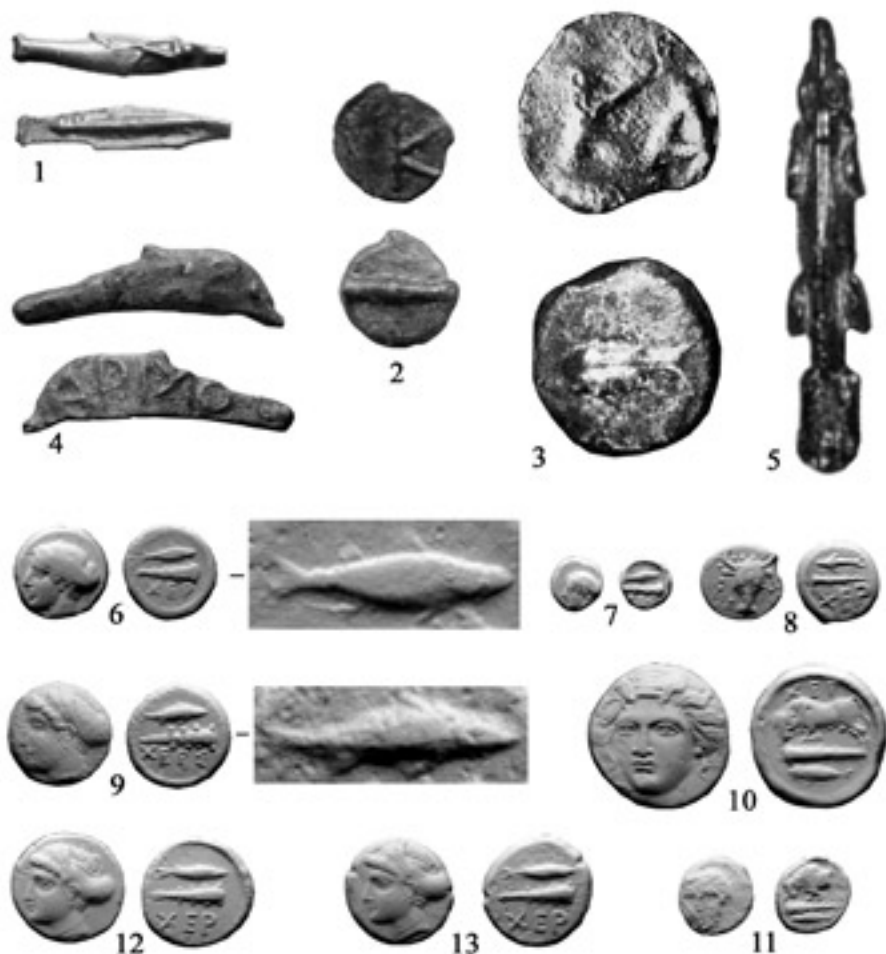


Fig. 2. Coins of Karkinitis, Olbia and Chersonesos. 1-3) Karkinitis, AE; 4) Olbia, AE; 5) Sturgeon shaped bronze figure from barrow 4 near the village of Ryleevka (West Crimea); 6-7, 10-11) Chersonesos, AR; 8-9, 12-13) Chersonesos, AE. (1: Gorny & Mosch auction 60, lot No. 180, photo courtesy of the Gorny & Mosch Giessener Münzhandlung; 2: Odessa Museum of Numismatics, photo courtesy of the Museum; 3: after Kutajsov 1986, fig. 1; 5: after Koltuchov 1997, 63, fig. 3; 6-8, 11: State Hermitage Museum, Numismatic Department, inv.-nos. 25936-25937, 26075, 25945, after casts; 9: Bibliothèque royal de Belgique, Cabinet des Médailles, L. de Hirsch Collection 850, after a cast; 10: Hess-Leu auction 2.04.1958, lot No. 119, after a cast; 12: Ashmolean Museum Oxford, Heberden Coin Room, May bequest 1961, after a cast; 13: Bibliothèque National Paris, Cabinet des Médailles, after a cast.)

The second group is round in shape and consists of two denominations showing a fish on the obverse and an abbreviated city-ethnic KA or K on the reverse (Fig. 2.2-3).

Kutajsov, who first published and attributed these coins to Karkinitis, considered the obverse of the last group to be a representation of a dolphin or, as he suggested later, one of the sturgeon types. However, taking into account their state of preservation and the rather careless execution of the moulds, any attempt to identify the fish species should be met with caution. The dolphin, it seems, has the least chance of being among the candidates here.

Indeed, more helpful in this respect is the first of the two issues. The general outline of the casts, the heterocercal caudal fin with its characteristically elongated upper part and slightly upturned snout, leave little doubt that we have a representation of one of the sturgeon species, as already recognised by the first publishers. A relief horizontal rib, discernible on some of the casts, might perhaps also be regarded as a poor reproduction of a scute row, which distinguishes this kind of fish. However, the outward appearance showing the features characteristic for the entire *Acipenseridae* (Sturgeons) family is not as detailed as to make one agree unreservedly with M. Zolotarev, who identifies it as the *Huso huso* or beluga. As suggested by S.G. Koltuchov, the peculiar form of the Karkinitian cast money could perhaps have affected the appearance of the sturgeon in the contemporary Scythian animal-style metalwork.⁹ Articles designed or shaped like fish are fairly widespread in the steppes of Southern Russia showing an evident concentration in the Lower Dnieper region.¹⁰ Recent finds from the barrows near the village Ryleevka in the north-western Crimea may provide one of the most characteristic examples of such representations (Fig. 2.5).¹¹ It is, however, beyond the scope of this article to become involved in the details of this issue, although, as in the case of the arrowhead money, we certainly cannot exclude the cultural influence from Scythia upon the Greeks, rather than vice versa.

2. *Chersonesos*

2.1 Obv. Parthenos, left.

Rev. Fish r., and club, XEP. AR and Æ.

Anochin 1977, nos. 1-7; *SNG BM* 706.

This type is represented in two metals, which apparently were struck contemporaneously. Well-preserved specimens of two different denominations kept in St. Petersburg, London, and Oxford¹² allow more accurate attribution of the fish species (Fig. 2.6,12). Two clearly discernible dorsal fins and a projecting anal fin seem to indicate that the die engraver intended to represent a mullet. Perhaps this might not be true, however, for the variety of this type with the one-letter longer legend XEPΣ on the reverse, the finest example of this being

on the coin from the L. de Hirsch collection in Brussels (Fig. 2.9).¹³ Despite the exceptional state of preservation only one dorsal fin can be identified on this specimen with certainty. If this is the case, the most likely candidate would indeed be a Pontic shad.

2.2 Obv. Bukranion.

Rev. Fish left or right, and a club beneath. XEP. Æ.

Anochin 1977, Nos. 9-12.

The type is represented by bronze specimens only (Fig. 2.8). In all dies known to me, the fish has apparently only one dorsal fin, although the entire image is so stylised that any attempt to identify the species would be a matter of pure speculation. The possibility cannot even be ruled out that we are dealing with an extremely poor representation of a dolphin, such as that appearing not infrequently on the coinage of Classical and early Hellenistic Byzantium.¹⁴

While the silver and bronze of Type 1 belong to the first quarter of the fourth century, Type 2 known only in bronze cannot be dated earlier than the second quarter of the same century. Amazing though it may seem, apart from the club the early coin typology of Chersonesos has little to do with that of the metropolis. Permanence of the reverse device, which characterises the local coinage for at least a quarter a century, seems to imply an effort to introduce it as an emblem of the city. It can perhaps be corroborated by the following type:

2.3 Obv. Head of Parthenos in a three-quarter view.

Rev. Butting bull, l.; club and fish beneath. AR.

Anochin 1977, Nos. 23-25.

The same emblem appears here as an additional element of the type (Fig. 2.10-11). However, this attempt seemed to fail and from about 360 BC, the fish, unlike the club, disappears entirely from the Chersonesean coin typology. Although the reason for this alteration remains unknown, we may assume that the annexation of the fertile plain of the western Crimea, where the earliest Chersonesean presence recorded at Panskoye I is datable to exactly the same period,¹⁵ could perhaps lead to the shifting accents in the *polis'* economy.

In spite of this it would be erroneous to think that fishing was losing its importance in the following periods of the city's history. On the contrary, fish was certainly both staple food and one of the bases of the Chersonesean economy,¹⁶ and it maintains this role in the modern city of Sevastopol', the successor to ancient Chersonesos. Perhaps this is most vividly stressed in the novel *Lestrigonoi* by the early twentieth century Russian writer Alexander Kuprin, who gives an account of the everyday life of the fishing village of Balaklava just on the outskirts of Sevastopol.¹⁷ This story makes clear the role of the dolphins too, which chase the huge schools of mullet into the deep – but

extremely narrow – Balaklava Bay, thereby providing a unique opportunity to catch the fish in enormous quantities.¹⁸ Characteristically, the images of dolphins occur occasionally on the Chersonesean small copper coins at that very point when we find the depiction of a fish. However, taking into account bone remains of the common dolphin (*Delphinus delphis ponticus* Barab.-Nik.) reported from the rural settlements of the western Crimea¹⁹ and Chersonesos itself,²⁰ it would seem probable that in some periods it might have been hunted for its meat or oil as well.

3. *Pantikapaion*

3.1. Obv. Lion's head facing.

Rev. Ram's head l.; below, sturgeon l.; ΠΑΝΤΙ. ΑΡ.

Anochin 1986, Nos. 67-69; *SNG BM* 852-853.

3.2 Obv. Head of a bearded satyr right.

Rev. Forepart of an eagle-headed griffin left, underneath a sturgeon l.; ΠΑΝ. ΑΕ.

Anochin 1986, No. 111; *SNG BM* 869-871.

3.3 Obv. Head of a bearded satyr wearing a wreath, left.

Rev. Head of a sturgeon r.; ΠΑΝ. ΑΕ.

Anochin 1986, No. 81.

3.4 Obv. Beardless head of satyr with wreath left.

Rev. Head of a lion, l., with a sturgeon beneath it; ΠΑΝ. ΑΕ.

Anochin 1986, No. 125; *SNG BM* 883-885.

Apart from silver coins of Type 1, dating to the late fifth century BC (Fig. 3.1-2), the remaining coins belong to the late fourth century BC and are bronze. The issue of the last type was particularly abundant, and the period of circulation fairly long.

Elements of the types are detailed enough to make it certain that they represent one and the same fish species. However, as to its attribution, opinions are not unanimous. Zograph sometimes calls it, "fish of the sturgeon family", sometimes sterlet.²¹ D.B. Šelov was inclined to see here a Russian sturgeon.²² Considering it to be the same sort of reflection of local conditions as the horse's head, bull's head, the ear of grain, he wrote: "this image ... unquestionably points toward Bosporos' wealth in fish and the importance of the fishery industry for the country's economy".²³

As noticed already by a number of scholars, the composition of the entire Type 3 with a lion's head to the left in the centre, the letters in field to the sides, and with a fish beneath, clearly reminds one of the reverses of the tetradrachms struck in Kyzikos in the fourth century BC,²⁴ which perhaps served as originals for the local copper currency (Fig. 1.11).



Fig. 3. Coins of Pantikapaion. 1-2) AR; 3-5) AE. Sturgeon species: a) Beluga; b) Russian sturgeon; c) Starry sturgeon (*sevryuga*); d) Fringebarbel sturgeon; e) Sterlet. (1-2: after Anochin 1986, nos. 67-68; 3: Museum Narodowe Warsaw, inv.-No. 105512, after a cast; 4: Gorny & Mosch auction 118, lot No. 1150, photo courtesy of the Gorny & Mosch Giessener Münzhandlung; 5: Danish National Museum, Collection of Coins and Medals, SNG Cop. 6.35, photo courtesy of the Museum.)

In 1964 this motif was discussed in a special article by V.M. Brabič. Following Šelov in identifying the fish as a Russian sturgeon, he suggested regarding the entire composition as semantically interdependent. According to this view, both lion and griffin appear to carry out a protective function regarding grain and fish, which were the basic commodities of the Bosporan trade.²⁵ Taking into account the Greek belief that the griffins guarded gold from the Arimaspians on the northern edge of *oikoumene* (Hdt. 3.116.1; 4.13.1. Cf. Aisch., *Pers.* 804) this cannot be completely ruled out. However, it seems that the coin emblems allow more accurate attribution of the fish species. A distinctive long snout pointed at the tip, which is clearly discernible on the

well-preserved specimens (Fig. 3.3-5), as well as the rather narrow body, speak in favour of a sevriuga, known also as the starry sturgeon (*Acipenser stellatus*). This species is probably intended by Athenaios when, speaking about Bosporean sturgeons, he mentions *genos oxyrinchos* or the sharp-snouted variety as “not inglorious in the eye of mortals” (Athen. *Deipn.* 3.116b).

The above is consistent with the fact that among sturgeons it is precisely the sevriuga which prevails in the ichthyo-faunal remains from the Bosporean sites. So in the finds from Pantikapaion, analysed by V.D. Lebedev and Ju.E. Lapin, the sevriuga makes up 12.8% against 10.2% and 7.7% for Russian sturgeon and sterlet, respectively.²⁶ In the finds from Phanagoria the share of the sevriuga was 30.8%, 22.2% being Russian sturgeon.²⁷ *Acipenser stellatus* equally predominates in the modern catches in the Kuban River,²⁸ which in antiquity had its main out-fall not in the Sea of Azov as today, but further south in the Black Sea near the straits or even in the Taman Bay. Bearing this in mind we may also assume here some higher concentration of sturgeons than in our time.

Indicating the sources of the economic prosperity of Pantikapaion, the fish on its coins might well have had a double significance, implying at the same time the city-name. Being related to Pantikapēs, one of the main Scythian rivers mentioned by Herodotos (4.54), it apparently derives, according to M. Vasmer and V.I. Abaev, from the Old-Iranian **panti-kāpa*, which should mean a “fishy way”.²⁹

Strabon (7.3.18) provides additional evidence on the Bosporean fishery while describing the winter extremes of the region. “The severity of the frost” – he says – “is most clearly evidenced by what takes place in the region of the mouth of Lake Maeotis: the waterway from Pantikapaion across to Phanagoria is traversed by wagons, so that it is both ice and roadway. And fish that become caught in the ice are obtained by digging with an implement called *gangame* and particularly the *antacaei*, which are about the size of dolphins” (transl. H.L. Jones). H.F. Tozer supposed here that it was ice fishing by means of a small round net which is denoted by the term *gangame*.³⁰ In contrast, V.Ju. Marti and H.L. Jones commenting on the same passage assume it indicates a different technique.³¹ “Strabo”, Jones wrote, “seems to mean that the fish were embedded in the ice”,³² while the *gangame* refers rather to a pronged instrument resembling a trident.³³ This assumption, however, appears in both respects to be a matter of confusion. According to Oppian and lexicographers *gangame* is a variety or synonym for *sagene* and *diktyon*, both of which mean “fishing net”.³⁴ Both A.W. Mair and F. Fajen, the translators of Oppian’s *Halieutika*, see it as a “drag-net” or “Schleppnetz”.³⁵ Moreover, the change of climatic conditions since the Late Classical period was insignificant,³⁶ and assuming even the severest frost which might occur in the region, the thought that the fish could be frozen into the ice, is rather dubious. Furthermore, in Strabo’s account we face another difficulty, when in connection with ice fishing he mentions sturgeons. Although the catching of sturgeons could in principle

take place in winter, these species seem not to lend themselves to ice fishing. In winter while hibernating they congregate in sea-bottom holes and exhibit little activity. In spring, when the ice breaks, they rise from the bottom holes and move upstream for spawning.

The next group of coin types showing fish leads us to the southern coast of the Black Sea. The first area is represented by Sinope and Herakleia. Despite the long history of their coinage, which goes back to the sixth century and the last quarter of the fifth century BC, respectively, a fish appears solely on a few types of bronze from the imperial time. The quality of the images does not allow any reliable identification of the fish species.

4. *Sinope*

Caracalla

4.1 Obv. Bearded head right; ANTONINVS AVG.
Rev. Fish left; C I F SINOP. Æ.
Rec. I.1, 205, No. 134, pl. 28.4.

Geta

4.2 Obv. Head of Geta right; IMP SEPTI GETA.
Rev. Fish left; C I F SI NOPES. Æ.
Rec. I.1, 206, No. 141.

4.3 Obv. Head of Geta right; C P SEPT GETA.
Rev. Fish right; C·I·F· SINOPE. Æ.
Rec. I.1, 206, No. 142, pl. 28.10; *SNG Cop.* 317.

Alexander Severus

4.4 Obv. Bust of the emperor right; AV·SEV·ALEXAND.
Rev. Fish left; [C·I·F]S·A·CCXC·III[I?]. Æ.
Rec. I.1, 207, No. 148.

Maximus

4.5 Obv. Bust right; MAXIMVS CAES.
Rev. Fish left; C·R·I·F·S·A[---].
Rec. I.1, 207, No. 153, pl. 28.18.

5. *Herakleia*

Obv. Herm of Dionysos; ΗΡΑΚΛΕΩΤΑΝ.
Rev. Two tunny fish to l. and r.; in centre, pellet. Æ.
SNG BM 1639.



Fig. 4. Bronze coins of the southern Black Sea littoral. 1) Sinope, Caracalla; 2) Sinope, Geta; 3) Sinope, Maximus; 4) Herakleia Pontike, enlarged 1:1.5; 5) Byzantion, Caligula; 6-7) Byzantion, Plotina; 8) Byzantion, Sabina; 9) Byzantion, Faustina the Younger; 10) Byzantion, Lucilla. (1-3: after Waddington, Babelon & Reinach 1904, pl. 28.4, 10, 18; 4: British Museum, Department of Coins and Medals, SNG BM 1639, photo courtesy of the Museum (Andrew Meadows); 5-10: after Schönert-Geiss 1972, pls. 63.1312/2, 68.1361-1362/2, 69.1374, 73.1420/2, 74.1422/2.)

In the *Sylloge* of the British Museum the Herakleian type is dated (very) approximately from the early second to the late first centuries BC. However, I cannot see any reason for such an early date. On the contrary, taking into account the form of the letters as well as the specific design of the reverse type paralleled in the coinage of Byzantion, it is more likely that we are dealing with a so-called pseudo-autonomous issue of the Late Roman period.

6. Byzantion

The coinage of Byzantion offers us further examples of types representing fish, although, to be more precise, we are talking about one and the same reverse emblem reproduced repeatedly over more than two hundred years. Apart from minor variations the composition constituted by two tunny fish does not show much diversity. On the earliest specimens struck in the name of Caligula, Trajan, and Sabina the fishes appear alone and, as a rule, facing in the same direction. However, the coins of Plotina, the wife of Trajan, already reveal further development of the type by adding a dolphin between the fish. In this form it survives until the middle of the third century. Starting from Plotina, we see the two tunny fish regularly turned in opposite directions.

Concerning this type, E. Schönert-Geiss in her *Corpus* of the coins of Byzantion of the period of the Roman Empire wrote: „Die Thunfischerei scheint auch in römischer Zeit noch immer mit zu der wichtigsten Einnahmequelle der Stadt gehört zu haben. Das lässt sich jedenfalls an den zahlreichen Abbildungen zweier Thunfische – dazwischen häufig ein Delphin als zusätzliches Symbol für das Meer – erkennen.“³⁷

This assumption is completely consistent with the remark by Athenaios when he says that the Byzantians “have so many fish in their part of the world that they are all clammy and full of phlegm” (Athen. 4.132e). As to a description of the city, Polybios’ words are even more precise: “the site of Byzantion is as regards the sea more favourable to security and prosperity than that of any other city in the world known to us, but as regards the land it is most disadvantageous in both respects” (Polyb. 4.38.1).

Taking into account the above mentioned, it is tempting to lean towards the statement of Schönert-Geiss. However, it turns out that the type being discussed seems to have very little if anything to do with the fishing industry of the *polis*. Being mostly religiously or mythologically determined, the coin types reveal no connections with any of the city’s economic activities. Furthermore, the fish is well known as an emblem of the Syrian Goddess, Atargatis. The fish is one of the elements of her cult legends and in some respects her physical appearance was that of a fish (Lukianos, *On the Syrian Goddess* 14).³⁸ The cult of Syrian Aphrodite and *Dea Syria* seems rather early to spread to the various parts of the Greek world where she was generally regarded as Syrian Aphrodite. The dedications from Berezan,³⁹ Olbia⁴⁰ and Bizone⁴¹ prove that her cult reached as far north as the Ukrainian and Bulgar-



Fig. 5. Bronze coins of Anchialos. 1) Crispina; 2) Julia Domna; 3-5) Maximinus; 6) Gordianus III. (1: after Struck 1912, pl. 6.22; 2: auction Gorny & Mosch 118, lot No. 1631, photo courtesy of the Gorny & Mosch Giessener Münzhandlung; 3: photo courtesy of the Aeqvitas.com (Heather Howard); 4: photo courtesy of Thomas Burger; 5: auction Lanz 102, lot No. 831, photo courtesy of the Numismatik Lanz; 6: in commerce, photo courtesy of the Classical Numismatic Group, Inc.)

ian coasts of the Black Sea.⁴² Being regarded as a goddess of fertility she was particularly popular among the female population. Apparently therefore, it is not fortuitous that the overwhelming majority of the coin types of the city showing two fishes were issued in the name of empresses, while the emperors mostly preferred other emblems.⁴³

The same is true for the bronze coins of Anchialos struck in the name of Faustina Junior, Crispina, Julia Domna, Maximinus Thrax and Gordian III, which conclude my catalogue.⁴⁴

7. Anchialos

Faustina Junior

7.1 Obv. Head of Faustina right; ΦΑΥΣΤΕΙΝΑ ΣΕΒΑΧΤΗ.

Rev. Dolphin between two fish; ΑΓΧΙΑΛΕΩΝ. ΑΕ.

AMNG 435; Mušmov 1912, No. 2788, pl. 17.8.

Crispina

7.2 Obv. Head of Crispina right; ΚΡΙCΠΕΙΝΑ CEBACTH.
 Rev. Bigger fish r. between two smaller fish l.; ANXIAΛEΩN.
 Æ.
 AMNG 453, pl. 6.22; SNG Cop. 431.

Julia Domna

7.3a Obv. Head of Julia Domna right; IOYΛΙΑ ΔOMNA CEB.
 Rev. Dolphin between two fish, in field Γ; AΓXIAΛEΩN. Æ.
 AMNG 507-508, pl. 7.5; Mušmov 1912, No. 2841, pl. 20.10.

7.3b Obv. Head of Julia Domna right; IOYΛΙΑ ΔOMNA CEB.
 Rev. Bigger fish r. between two smaller fishes l.; AΓXIAΛEΩN.
 Æ.
 AMNG 509.

Maximinus

7.4 Obv. Laureate head right; AYT MAΞIMEINOC EYCEBHC
 AYT.
 Rev. Dolphin between two fish. AΓXIAΛEΩN. Æ.
 AMNG 604-605, pl. 7.38; Mušmov 1912, 2893.

Gordian III

7.5 Obv. Laureate head of Gordian right; AYT K M ANT
 ΓOPΔIANOΣ AYT.
 Rev. Dolphin between two fish. Æ.
 AMNG 645; Mušmov 1912, 2923, pl. 17.8.

The resemblance of their reverse type to that of Byzantion is so striking as to conclude there was direct adoption from the latter city.⁴⁵

8. *Conclusions*

Summing up, we may assert that in a number of cases the coin typology of the Greek cities around the Black Sea reflects their dependency on the marine resources both in terms of daily food supply and international trade. However, as we could see, the distribution of evidence is not homogeneous, neither in geographical nor in chronological respects. This does not mean of course that fishery was necessarily of less – or of no – importance for areas and periods which do not match our list.⁴⁶ This might have occurred when the development of the local coin types had been determined by different reasons, such as religion, politics, or others, which as yet escape us.

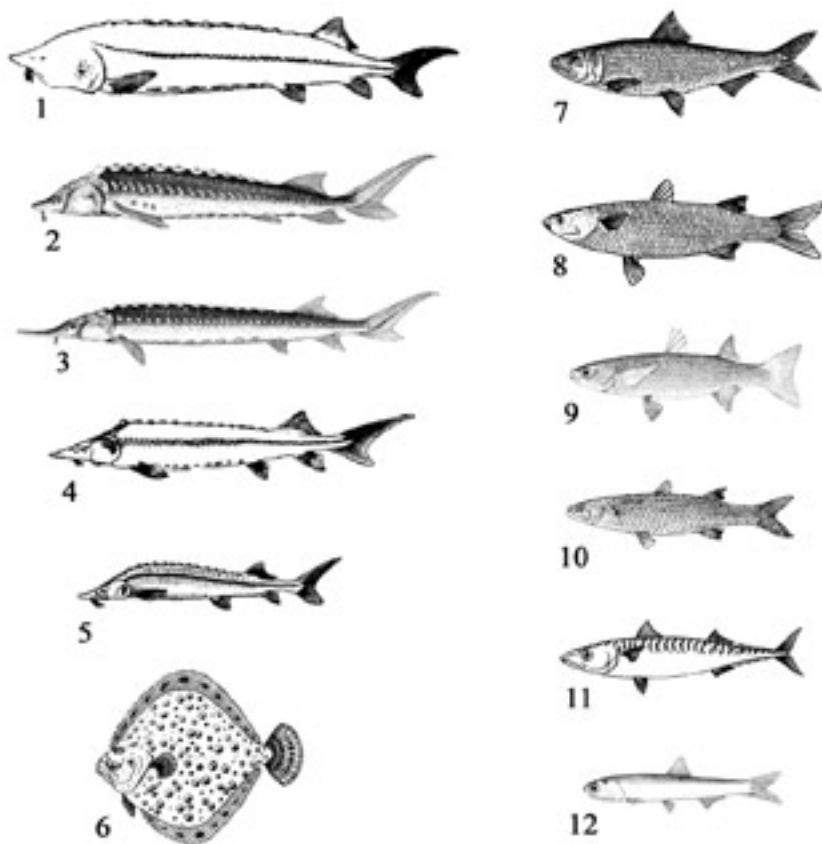


Fig. 6. Main Black Sea fish species of commercial importance. 1) Beluga, *Huso huso*; 2) Russian sturgeon, *Acipenser gueldenstaedtii*; 3) Starry sturgeon/ sevruga, *Acipenser stellatus*; 4) Fringebarbel sturgeon, *Acipenser nudiiventris*; 5) Sterlet, *Acipenser ruthenus*; 6) Turbot, *Rhombus maeoticus*; 7) Pontic shad, *Alosa pontica*; 8) Flathead mullet, *Mugil cephalus*; 9) Golden grey mullet, *Liza aurata*; 10) Leaping mullet, *Liza saliens*; 11) Atlantic mackerel, *Scomber scombrus*; 12) Black Sea anchovy, *Engraulis encrasicolus*. (1, 4-8, 10-11: after <http://www.internevod.com/rus/academy/bio/opr/>; 2-3, 9, 12: after <http://www.fishbase.org>).

On the other hand, we do not see a great diversity among the species appearing as a coin type or as part of one. Apart from a few cases we must be cautious, however, about inferring that one kind of fish was more important than another. While interpreting coin evidence it has to be borne in mind that we are at the same time dealing with a work of art where an idea could often be more important than a form. Conversely, we can scarcely expect the appearance on coins of any fish type with which the local people were not familiar.⁴⁷

Notes

- 1 For a helpful overview, see Zograf 1951, 56-71; Kraay 1976, 2-5.
- 2 Cf., however, Tichij 1917, 6; Semenov-Zuser 1947a, 13; 1947b, 239, who instead of a dolphin saw here a pelamys. Equally dubious is the statement of Semenov-Zuser that the dolphin-shaped cast money of Olbia must indicate the wide-scale consumption of fish by the Black Sea population.
- 3 Karyškovskij 1982, 87-89.
- 4 See Toporov 1972, 93; Litvinskij 1975, 253-257; Karyškovskij 1982, 92; Raevskij 1977, 46-49, 53, 119-123; 1985, 109, 111-113, 224 note 21. On fish in Scythian art, see now Michel 1995.
- 5 Karyškovskij 1982, 98 note 154.
- 6 On these scenes in the Scythian animal style, see, e.g., Fedorov-Davydov 1975, 23-28; Kuz'mina 1976, 68-70; 1987, 3-12.
- 7 Kraay 1976, 226.
- 8 Kutajsov 1986, 94-97; 1991, 46-69; 1995, 39-59; Zolotarev 1986, 88-93; Anochin 1988, 133-136; 1989, Nos. 403-406. However, some specimens of this kind were known already to P.O. Buračkov (1881, 234-235; 1884, 99, No. 11) and A.V. Orešnikov (1892, 11-12, No. 12).
- 9 Koltuchov 1997, 63. He outlines that it was V.A. Kutajsov, who first put forward this hypothesis, although neither the page he refers to, nor the other pages of Kutajsov's article (1991) reveal it. On the Greek influence upon Scythian animal style, see in general Rostovtzeff 1929, 35; Onajko 1976a, 76-86; 1976b, 71-72.
- 10 For a brief account of such depictions, see Rostovcev 1913, 45-46; Koltuchov 1997; Gavriljuk (in this volume). On the most recent find of the gold fourth-century BC fish-shaped plaques from Tumulus 1 near the village of Filippovka, see Aruz et al. (eds.) 2000, 120-121, Nos. 58-59.
- 11 S.G. Koltuchov's excavations of 1993. See Koltuchov 1997, 62-63.
- 12 The Hermitage collection: Inv. Nos. 25935 and 25936; SNG BM 706; The Ashmolean Museum, Heberden Coin Room: May bequest 1961.
- 13 Naster 1959, 142, No. 850, pl. 45.
- 14 Schönert-Geiss 1970, pls. 1-2, 5-6, 10.
- 15 Stolba 1991, 80, 83.
- 16 It is evidenced *inter alia* by the remains of the numerous fish-salting vats of the first centuries AD. See Tichij 1917, 12-18; Surov 1948, 3-47; Belov 1953, 19-22; Kadeev 1962. One of the second-century AD inscriptions of Chersonesos also mentions the fish-market (ὀψώπωλις). See Semenov-Zuser 1947a, 35-44; 1947b, 244-246.
- 17 Kuprin 1986, 569-611.
- 18 Kuprin 1986, 576-580.
- 19 Ščeglov 1978, 26.
- 20 Belov 1936, 25; Kadeev 1970, 6.
- 21 Zograph 1977, 283.
- 22 Shelov 1978, 87 f.
- 23 Shelov 1978, 88. Cf. Zograph 1977, 283
- 24 Koehne 1857, 353; Zograph 1977, 177; Shelov 1978, 88.
- 25 Brabič 1964, 51.
- 26 Lebedev & Lapin 1954, 205, table 1, 213.
- 27 Lebedev & Lapin 1954, 208, table 3, and 213, table 10 for the other Bosporan settle-

- ments. See also Nikol'skij 1937, 122 (Elizavetovka). A completely different picture is provided by the fish finds from Berezan and Olbia, where sterlet (*Acipenser ruthenus* L.), Russian sturgeon (*Acipenser güldenstädti* Brandt) and beluga (*Huso huso* L.) certainly prevailed in the catches. See Ivanova 1994, 280-81, tables 1-2.
- 28 Marti 1941b, 95.
- 29 Vasmer 1923, 67, 73; Abaev 1949, 170, 175, 193.
- 30 Tozer 1893, 196.
- 31 Marti 1941b, 97.
- 32 Jones 1924, 225, note 6.
- 33 Jones 1924, 225, note 7.
- 34 Opp. *Hal.* 3.81: γάγμαμα τ' ἢ δ' ὑποχαῖ περιηγέες ἢ δὲ σαγήναι; Pollux 2.169.3: καὶ ὁ περὶ αὐτὸν τόπος γάγμαμον, ἐπεὶ νεύρων ἐστὶ πλέγμα, καθάπερ τὸ δίκτυόςδε ὃ νῦν καλεῖται γάγμαμον ἢ ὡς πολλοὶ σαγήνη; Ps.-Zonaras 419.27: Γαγγάμη· ἢ σαγήνη, τὸ δίκτυον; Photius, *Lex.* Γ 3.1: Γαγγάμη· δίκτυον. κυρίως δὲ σαγήνη· ἔνθεν καὶ οἱ σαγηνεύοντες γαγμαμουλκοί; Hesych. s.v. γαγγάμη· σαγήνη ἢ δίκτυον ἀλιευτικόν. καὶ σκευὸς γεωργικὸν ὁμοιον τῇ κρεάγρᾳ; Hesych. s.v. γάγμαμον· δίκτυον. (Aisch. *Ag.* 361) καὶ τὸ περὶ τὸν ὀμφαλὸν τῶν ὑποχονδρίων; *Schol. in Aisch.* *Ag.* 361a.1: γάγμαμον· δίκτυον.
- 35 For a more detailed discussion, see Bekker-Nielsen 2002b, 217,
- 36 See, e.g., Bučinskij 1953, 29; Borisov 1956, 540.
- 37 Schönert-Geiss 1972, 34.
- 38 See Wright 1990, 32, 35-38. On her cult in general, see also Hörig 1984, 1536-1581; Bilde 1990, 151-187, with literature. On the other hand, one should agree with Schönert-Geiss (1972, 36) in interpreting one of the most common coin types of Byzantium, showing two basket-shaped objects with an altar in between on the reverse, as torches (see already Head 1911, 270; Firath & Robert 1964, 155-156) rather than fish-traps (see, e.g., Franke 1968, 16-17).
- 39 Rusjaeva 1992, 104; Dubois 1996, 122, No. 74. Dedicatory graffito of the sixth century BC: Ἀθηνόμα[ν]δρος μ' ἀνέθεκεν Ἀφροδίτῃ Συρίῃ.
- 40 Tolstoj 1953, 24, No. 25; Rusjaeva 1992, 104; Dubois 1996, 122, No. 73. Graffito on the fifth-century BC black-glazed kylix: Ἀφ]ροδίτῃ Συρίῃ Μητρώ.
- 41 *IGBul* I, 8bis: [Θεᾶ Σ]υρίᾳ.
- 42 For additional evidence from the Black Sea, see Alexandrescu Vianu 1997, 15-32.
- 43 Cf. also the Olbian dedication made by a woman. See note 40.
- 44 Due to the lack of an image I omit here a single type of Kallatis of the autonomous period mentioned by Mušmov (1912, No. 222).
- 45 Concerning this coin type of Anchialos, cf., however, Strack 1912, 207: "Ackerbau und Weinbau verbürgen die Münzen, und auch den Fischfang und die Schifffahrt deuten sie klar an".
- 46 Cf., e.g., mention of the fish-market (ἰχθυοπώλιον) in the Protogenes decree from Olbia (*IOSPE* I², 32 B.4).
- 47 Notwithstanding the great variety of fish in the Black and Azov Seas amounting to more than 130 different species, less than 15% of it seems to be of commercial importance. The number of species suitable for export is even smaller. The data provided by N.E. Maximov regarding catches along the northern shore of the Black Sea from the Danube to the Kerch Straits in the period around 1910 gives an idea as to its quantitative and qualitative composition (See Andrusov & Zernov 1914). With 11,000 people engaged in fishery there the annual take totalled: flat-head mullet – 18,000 specimens, leaping mullet – 300,000 specimens, golden grey

mullet – 13,525,000 specimens, Atlantic mackerel – 73,880,000 specimens, Russian sturgeon, starry sturgeon, and beluga together – c. 424,000 kg, turbot – c. 512,000 kg, Pontic shad – c. 120,000 kg, *Mullus barbatus ponticus* – c. 208,000 kg, Black Sea anchovy – c. 1,440,000 kg, *zostericola* – c. 624,000 kg. This covers all the varieties we find listed in, for instance, the Varna Convention of 1959 concerning fishing in the Black Sea (Convention Concerning Fishing in the Black Sea, Varna, 7 July 1959 [<http://fletcher.tufts.edu/multi/texts/tre-0230.txt>]). The catch of the other species was minor and was not of commercial importance, which might be of some relevance. This is consistent with the osteological materials obtained from the sites excavated in western Crimea. Among the species reported are golden grey, flathead, and leaping mullets, Russian sturgeon, turbot (*Rhombus maeoticus* Pall.) and others. As has been proved by the studies conducted in the 1960s the last 2,000 to 2,500 years do not reveal any significant changes as to varieties, their proportion, areas of fattening, wintering, as well as periods and routes of migration of the main kinds of commercially viable fish (Ščeglov & Burdak 1965; Burdak 1966; Burdak & Ščeglov 1966; Ščeglov 1969; 1978, 26).

Abbreviations

ACFM	Advisory Committee on Fishery Management
AE	<i>L'Année Épigraphique</i>
AJA	<i>American Journal of Archaeology</i>
ANRW	Temporini, H. & W. Haase (eds.), <i>Aufstieg und Niedergang der römischen Welt</i>
Asbor	<i>Archeologičeskij Sbornik Gosudarstvennogo Ermitaža</i>
BAR	British Archaeological Reports
BCH	<i>Bulletin de Correspondence Hellénique</i>
C&M	<i>Classica et Mediaevalia. Revue danoise de philologie et d'histoire</i>
CAF	Kock, T. (ed.), <i>Comicorum Atticorum Fragmenta</i>
CIL	<i>Corpus Inscriptionum Latinarum</i>
FAO	United Nations Food and Agricultural Organization
IAK	<i>Izvestija imperatorskoj Archeologičeskoj Komissii</i>
ICES	International Council for the Exploration of the Seas
IGBul	<i>Inscriptiones Graecae in Bulgaria Repertae</i>
IGRR	Cagnat, R. (ed.), <i>Inscriptiones Graecae ad Res Romanas Pertinentes</i>
IK	<i>Inschriften griechischer Städte aus Kleinasien</i>
JPrehistRel	<i>Journal of Prehistoric Religion</i>
JRA	<i>Journal of Roman Archaeology</i>
KSIA	<i>Kratkie Soobščeniija Instituta Archaeologii AN SSSR</i>
MEFRA	<i>Mélanges de l'École Française de Rome. Antiquité. Paris</i>
MIA	<i>Materialy i issledovanija po archaeologii SSSR</i>
MünstBeitr	<i>Münstersche Beiträge zur antiken Handelsgeschichte</i>
NA IA NANU	<i>Naučnyj archiv Instituta archaeologii Nacional'noj Akademii nauk Ukrainy</i>
P.Wisc.	Sijpesteijn, P.E. (ed.), <i>The Wisconsin Papyri</i> . Leiden
RE	Pauly, A., G. Wissowa & W. Kroll (eds.), <i>Real-encyclopaedie der classischen Altertumswissenschaft</i>
REG	<i>Revue des Études Grecques</i>
RosA	<i>Rossijskaja Archaeologija</i>
SNG	<i>Sylloge Nummorum Graecorum</i>
SovA	<i>Sovetskaja Archaeologija</i>
VDI	<i>Vestnik drevnej istorij</i>
ZPE	<i>Zeitschrift für Papyrologie und Epigraphik</i>

Bibliography

- Abaev, V.I. 1949. *Osetinskij jazyk i fol'klor*. I. *Skifskij jazyk*. Moscow.
- Abaev, V.I. 1973. *Istoriko-etimologičeskij slovar' osetinskogo jazyka*. Leningrad.
- Achmerov, P.B. 1947. Amfory drevnegrečeskogo Chersonesa, *VDI* 1947:1, 160-176.
- Alekseev, A.Ju. 1995. Skifskoe pogrebenie V v. do n.e. v kurgane Malaja Cim-balka (raskopki I.E. Zabelina v 1868 g.), *ASbor* 32, 53-59.
- Alexandrescu Vianu, M. 1997. Aphrodites orientales dans le bassin du Pont-Euxin, *BCH* 121, 15-32.
- Andrusov, N.I. & S.A. Zernov 1914. Černoe more, in: *Krym. Putevoditel'*. Simferopol' (<http://www.moscow-crimea.ru/atlas/more3.html>).
- Anochin, V.A. 1977. *Monetnoe delo Chersonesa IV v. do n.e. – XII v. n.e.* Kiev.
- Anochin, V.A. 1986. *Monetnoe delo Bospora*. Kiev.
- Anochin, V.A. 1988. Monetnoe delo i denezhnoe obraščenie Kerkinitidy (po materialam raskopok 1980-1982 gg.), in: V.A. Anochin (ed.), *Antičnyje drevnosti Severnogo Pričernomor'ja*. Kiev, 133-148.
- Anochin, V.A. 1989. *Monety antičnych gorodov Severo-Zapadnogo Pričernomor'ja*. Kiev.
- Anonymous 2001. Bibliographie / bibliography. Augst und Kaiseraugst http://www.baselland.ch/docs/kultur/augustaraurica/publ/bibliogr/1_bibliogr.htm. Updated September 2001. Cited February 2003.
- Aquerreta, Y., I. Astiasarán & J. Bello. 2001. Use of Exogenous Enzymes to Elaborate the Roman Fish Sauce "Garum", *Journal of the Science of Food and Agriculture* 82, 107-112.
- Aranegui Gascó, C. (ed.) 2001. *Lixus: colonia fenicia y ciudad púnico-mauritana, anotaciones sobre su ocupación medieval*. Valencia.
- Aruz, J., A. Farkas, A. Alekseev & E. Korolkova (eds.) 2000. *The golden deer of Eurasia. Scythian and Sarmatian treasures from the Russian steppes*. New Haven.
- Aston, M. (ed.) 1988. *Medieval Fish, Fisheries and Fishponds in England*, I. Oxford.
- Aubet, M.E. 1987. Notas sobre le economía de los asentamientos fenicios del sur de España, *Dialoghi di Archeologia* 5.2, 51-62.
- Aubet, M.E. 1993. *The Phoenicians and the West*. Cambridge.
- Aubet Semmler, M.E. 2002. The Tartessian Orientalizing Period, in: Bierling (ed.) 2002, 199-224.

- Auriemma, R. 1997. Le anfore africane del relitto di Grado. Contributo allo studio delle prime produzioni tunisine e del commercio di salse ed conserve di pesce. *Archeologia subacquea*. (Studi, Recherche e Documenti, II). Rome, 129-155.
- Auriemma, R. 2000. Le anfore del relitto di Grado e il loro contenuto. *MEFRA* 112, 27-51.
- Austin, M.M. 1981. *The Hellenistic world from Alexander to the Roman conquest. A selection of ancient sources in translation*. Cambridge.
- Badham, C.D. 1854. *Prose Halieutics or Ancient and Modern Fish Tattle*. London.
- Barnes, T.D. 1998. *Ammianus Marcellinus and the Representation of Historical Reality*. Ithaca.
- Basch, L. 1987. *Le musée imaginaire de la marine antique*. Athens.
- Beddows, C.G. 1985. Fermented Fish and Fish Products. *Microbiology of Fermented Foods*. 2 Vols. London, Vol. 2, 1-39.
- Bekker-Nielsen, T. 2002a. Fish in the Ancient Economy, in K. Ascani et al. (eds.), *Ancient History Matters. Studies presented to Jens Erik Skydsgaard on His Seventieth Birthday* (Analecta Romana Instituti Danici, Supplementum, 30). Rome, 29-37.
- Bekker-Nielsen, T. 2002b. Nets, Boats and Fishing in the Roman World, *C&M* 53, 215-233.
- Belon, P. 1555. *Les observations de plusieurs singularitez de choses memorables, trouvées en Grece, Asie, Iudée, Egypte, Arabie, et autres pays estranges*. Antwerp.
- Belov, G.D. & S.F. Strželeckij 1953. Otčety (Raskopki 1937-1948 gg.) Kvartaly XV i XVI, *MIA* 34, 32-236.
- Belov, G.D. 1936. *Raskopki Chersonesa v 1934 g. Simferopol'*.
- Belov, G.D. 1953. Severnyj pribrežnyj rajon Chersonesa (po novejšim raskopkam), *MIA* 34, 11-31.
- Ben Lazreg, N., M. Bonifay, A. Drine & P. Troussset 1995. Production et commercialisation des *salsamenta* de l'Afrique ancienne, in: *Productions et exportations Africaines. Actualités archéologiques*. Paris, 103-142.
- Berger, L. 2002. *Durchbrochene Messerfutterale (Thekenbeschläge) aus Augusta Raurica. Ein Beitrag zur provinzialrömischen Ornamentik* (Forschungen in Augst, 32). Augst.
- Bernal Casasola, B. & J.M. Pérez Rivera 1999. *Un viaje discrónico por la historia de Ceuta; resultados de las Intervenciones arqueológicas en el Paseo de las Palmeras*. Madrid.
- Bertier, J. 1972. *Mnésithée et Dieuchès*. Leiden.
- Bierling, M.R. (ed.) 2002. *The Phoenicians in Spain: An Archaeological Review of the Eighth-Sixth Centuries B.C.E.* Winona Lake, Indiana.
- Bilde, P. 1990. Atargatis/Dea Syria: Hellenization of her cult in the Hellenistic-Roman period? in: P. Bilde et al. (eds.), *Religion and religious practice in the Seleucid kingdom* (Studies in Hellenistic civilization, 1). Aarhus, 151-87.

- Bittner, A. 1998. *Gesellschaft und Wirtschaft in Herakleia Pontike. Eine Polis zwischen Tyrannis und Selbstverwaltung* (Asia Minor Studien, 30). Bonn.
- Blacker, L.V.S. 1922. *On Secret Patrol in High Asia*. London.
- Blagg, T.F.C., R.F.J. Jones & S.J. Keay (eds.) 1984. *Papers in Iberian Archaeology*, II. Oxford.
- Blanchard-Lemée, M. 1975. *Les mosaïques du quartier central de Djemila (Cuicul)*. Aix-en-Provence.
- Blázquez, J.M., M. Montenegro, J.M. Roldán, J. Mangas, R. Teja, J.J. Sayas, L.G. Iglesias & J. Arce 1978. *Historia de España Antigua, II: Hispania Romana*. Madrid.
- Blümner, H. 1869. *Die gewerbliche Thätigkeit der Völker des klassischen Alterthums*. Leipzig.
- Blümner, H. 1911. *Die römischen Privataltertümer*. 3rd ed. (Handbuch der klassischen Altertumswissenschaft, 4,2,2). Munich.
- Bode, Mathias 2002. Wale und Walfang in der Antike, *Laverna* 13, 1-23.
- Bodjanskyj, O.V. 1951. Šcodennik archeologičnyh doslidiv na pravomu berezi Dnipra, *NA IA NANU*. 1951/12 (Manuscript).
- Boessneck, J. (ed.) 1973. *Tierknochen von westphönizischen und phönizisch beeinflussten Ansiedlungen in Südspanischen Küstengebiet*. Munich.
- Bonneville, J.-N., F. Didierjean, N. Dupre, P. Jacob, J. Lancha, M. Fincker, C. Ney & J.-L. Paillet 1984. La dix-huitième campagne de fouilles de la Casa de Velazquez à Belo en 1983 (Bolonía, province de Cadix), *Mélanges de la Casa de Velazquez* 20, 439-486.
- Boplan, G.L. 1990. *Opyś Ukrainy*. Kiev.
- Borisov, A.A. 1956. O kolebanijach klimata Kryma za istoričeskoe vremja, *Izvestija Vsesojuznogo geografičeskogo obščestva* 88.6, 532-541.
- Brabič, V.M. 1964. Ob izobraženii na monetach Pantikapeja l'vinoj golovy i osetra, *Soobščeniya Gosudarstvennogo Ermitaža* 25, 50-52.
- Brašinskij, I.B. 1968. Recherches soviétiques sur les monuments antiques des régions de la Mer Noire, *Eirene* 7, 81-118.
- Braund, D. & J. Wilkins (eds.) 2000. *Athenaeus and his World*. Exeter.
- Bravo Perez, J. 1980. Fábrica de salazones en la Ceuta romana, *CRIS Revista de la mar* April, 40.
- Brujako, I.V. 1999. Očerki ekonomičeskoj istorii naselenija Severo-Zapadnogo Pričernomor'ja v 7-3 vv. do R.Ch. Volžsk.
- Brun, A.H. 1930. *Blandt Krigsfanger i Turkestan*. Copenhagen.
- Bruschi, T. & B. Wilkens. 1996. Conserves de poisson à partir de quatre amphores romaines, *Archaeofauna* 5, 165-169.
- Bučinskij, I.E. 1953. Izmenilsja li klimat Ukrainy za istoričeskoe vremja, *Izvestija Vsesojuznogo geografičeskogo obščestva* 1, 21-30.
- Buračkov, P.O. 1881. Opyt soglašeniya otkrytoj v Chersonese nadpisi s prirodou mestnosti i sochranivšimisja u drevnich pisatelej svedenijami, odnosjaščimisja ko vremeni vojn Diofanta, polkovodca Mithridata so skifami, *ZOOID* 12, 222-248.

- Buračkov, P.O. 1884. *Obščij katalog monet, prinadležaščich ellinskim kolonijam, suščestvovavšim v drevnosti na severnom beregu Černogo morja, v predelach nunešnej Rossii*. I. Odessa.
- Burdak, V.D. & A.N. Ščeglov 1966. O tempe rosta, vozrastnom sostave stad i migracijach nekotorych černomorskich ryb v antičnuju epochu, in: *Ekologo-morfologičeskie issledovanija nehtonnych životnyh*. Kiev, 117-120.
- Burdak, V.D. 1966. Ob izmenenii tempa rosta černomorskich kefaľej v istoričeskoe vremja, *Doklady Akademii nauk SSSR* 167.5, 1156-1158.
- Cara Barrionuevo, L., J. Cara Rodríguez & J.M. Rodríguez López 1988. Las cuevas de la Reserva (Roquetas) y otras factorías pesqueras de época romana en la provincia de Almería, in: Ripoll Perelló (ed.) 1988, 919-934.
- Carreras Monfort, C. 2000. *Economía de la Britannia Romana: la importación de alimentos* (Collecció Instrumenta, 8). Barcelona.
- Casteel, R.W. 1976. *Fish Remains in Archaeology and Paleo-environmental Studies*. London.
- Cepkin, E.A. 1970. Novye materialy k istorii rybnogo promysla v Tanaise, *KSIA* 124, 115-17.
- Chibnall, M. 1975. Pliny's Natural History and the Middle Ages, in: T.A. Dorey (ed.), *Empire and Aftermath: Silver Latin II*. London, 57-78.
- CIA 1972. *World Data bank 2*. Central Intelligence Agency, Washington, D.C. USA. GIS-layer downloaded from UNEP-GRID at <http://www.grid.unep.ch/data/grid/gnv19.html>.
- Clément, V. 1999. Le territoire du Sud-Ouest de la péninsule Ibérique à l'époque romaine; du concept au modèle d'organisation de l'espace, in: Gorges & Rodríguez Martín (eds.) 1999, 109-120.
- Cleto, J. 1995-96. A indústria de conserva de peixe no Portugal romano. O caso de Angeiras, *Matesinus* 1-2, 23-45.
- Colls, D., R. Étienne, R. Lequément, B. Liou & F. Mayet 1977. *L'épave Port-Vendres II et le commerce de la Bétique à l'époque de Claude* (Archaeonautica, 1). Paris.
- Conovici, N. 1998. *Histria VIII: Les timbres amphoriques*, 2. Sinope. Bucharest.
- Corcoran, T.H., 1957. The Roman Fishing Industry of the Late Republic and Early Empire. Ph.D. dissertation, Northwestern University.
- Cotton, H., O. Lerenau & Y. Goren. 1996. Fish Sauces from Herodian Masada. *JRA* 9, 223-238.
- Coull, J.R. 1993. *World fisheries resources*. London.
- Curtis, R.I. 1979. The Garum Shop of Pompeii, *Cronache Pompeiane* 5, 5-23.
- Curtis, R.I. 1983. In Defense of Garum, *CJ* 78, 232-240.
- Curtis, R.I. 1984a. *Negotiatores Allecarii* and the Herring, *Phoenix* 38, 147-158.
- Curtis, R.I. 1984b. A Personalized Floor Mosaic from Pompeii, *AJA* 88, 557-566.
- Curtis, R.I. 1984-1986. Product Identification and Advertising on Roman Commercial Amphorae, *Ancient Society* 15-17, 209-228.

- Curtis, R.I. 1988a. Spanish Trade in Salted Fish Products in the 1st and 2nd Centuries A.D. *International Journal of Nautical Archaeology and Underwater Exploration* 17, 205-210.
- Curtis, R.I. 1988b. A. Umbricius Scaurus of Pompeii. *Studia Pompeiana et Classica in Honor of Wilhelmina F. Jashemski*, 1-2. New Rochelle, N.Y., vol. 1, 19-49.
- Curtis, R.I. 1991. *Garum and Salsamenta. Production and Commerce in Materia Medica*. Leiden.
- Curtis, R.I. 2001. *Ancient Food Technology*. Leiden.
- Cuvier, G.L. & M. Valenciennes 1832. Account of the Common Mackerel (*Scomber scombrus*, Lin.) and the Garum of the Ancients, *Edinburgh Journal of Science* N.S. 12, 286-294.
- Danov, C. 1962. Pontos Euxeinos. *RE Suppl.* 9, 866-1175.
- Dardaine, S. & J.-N. Bonneville. 1980. La campagne de fouilles d'Octobre 1979 à Belo, *Mélanges de la Casa de Velazquez* 16, 375-419.
- D'Arms, J.H. 1981. *Commerce and Social Standing in Ancient Rome*. Cambridge, Mass.
- D'Arms, J.H. & E.C. Kopff (eds.) 1980. *The Seaborne Commerce of Ancient Rome: Studies in Archaeology and History*. Rome.
- Davidson, J. 1997. *Courtesans and Fishcakes*. London.
- de Alarcão, J. (ed.) 1971. *Actas do II Congresso Nacional de Arqueologia (Coimbra, 1970)*, II. Coimbra.
- de Alarcão, J. 1988a. *Roman Portugal*, I. Warminster.
- de Alarcão, J. 1988b. *Roman Portugal*, II. Warminster.
- de Almeida, D.F., J. Cavaleiro Paixão & A. Cavaleiro Paixão. 1978. *Notas sobre a estação arqueológica de Tróia de Setúbal*. Setúbal.
- de Figueiredo, A.M. 1906. Ruines d'antiques établissements à salaisons sur le littoral sud du Portugal, *Bulletin Hispanique* 8, 109-121.
- de Frutos, G., G. Chic & N. Berriatua. 1988. Las anforas de la factoria prerromana de salazones de "Las Redes" (Puerto de Santa Maria, Cadiz), in: Pereira Menaut (ed.) 1988, 295-306.
- Delussu, F. & B. Wilkens 2000. Le conserve di pesce. Alcuni dati da contesti Italiani, *MEFRA* 112, 53-65.
- Desse-Berset, N. & J. Desse 2000. *Salsamenta, garum* et autres préparations de poissons. Ce qu'en disent les os, *MEFRA* 112, 84-92.
- Dias Diogo, A.M. & A. Cavaleiro Paixão 2001. Ânforas de escavações no provoado industrial romano de Tróia, Steúbal, *Revista portuguesa de arqueologia* 4, 117-40.
- Domanskij, J.V. & K.K. Marčenko 2003. Towards Determining the Chief Function of the Settlement of Borysthenes, in: P.G. Bilde, J.M. Højte & V.F. Stolba, *The Cauldron of Ariantas* (Black Sea Studies, 1). Aarhus, 29-36.
- Domergue, C., G. Nicolini, D. Nony, A. Bourgeois, F. Mayet & J.C. Richard 1974. *Excavaciones de la Casa de Velazquez en Belo (Bolonia – Cádiz); Campañas 1966 a 1971* (Excavaciones Arqueológicas en España, 79). Madrid.

- Donati, A. & P. Pasini (eds.) 1997. *Pesca e pescatori nell'antichità*. Venice.
- Dovatur, A.I., D.P. Kallistov & I.A. Šišova 1982. *Narody našej strany v "Istorii" Gerodota*. Moscow.
- Dressel, H. 1879. Di un grande deposito di anfore rinvenuto nel nuovo quartiere del Castro Pretorio, *Bullettino della commissione archeologica comunale di Roma* 7, 36-112, 143-195.
- Drexhage, H.-J. 1993. Garum und Garumhandel im römischen und spätantiken Ägypten. *MünstBeitr* 12, 27-55.
- Dubois, L. 1996. *Inscriptions grecques dialectales d'Olbia du Pont* (Hautes études du monde Gréco-Romain, 22). Genève.
- Dumont, J. 1976-77. La pêche du thon à Byzance à l'époque hellénistique, *REA* 78-79, 96-119.
- Dupont, P. 2001. Trafics méditerranéens archaïques: quelques aspects, in: R. Eichmann & H. Parzinge (eds.), *Migration und Kulturtransfer. Die Wandel vorderer- und zentralasiatischer Kulturen im Umbruch vom 2. zum 1. vorchristlichen Jahrtausend. Akten des Internationalen Kolloquiums Berlin, 23. bis 26. November 1999*. Bonn, 445-460.
- Duval, P.-M. 1949. La forme des navires romains d'après la mosaïque d'Althiburus, *MEFRA* 61, 119-149.
- Eberl, G. 1892. *Die Fischkonserven der Alten*. Stadtamhof.
- Edmondson, J.C. 1987. *Two Industries in Roman Lusitania: Mining and Garum Production*. (BAR International Series, 362). Oxford.
- Edmondson, J.C. 1990. Le *garum* en Lusitanie urbaine et rurale: hiérarchies de demande et de production, in: Gorges (ed.) 1990, 123-147.
- Ehmig, U. 1995. Allex oder Anderes, *Mainzer Archäologische Zeitschrift* 2, 117-130.
- Ehmig, U. 1996. Garum für den Statthalter. Eine Saucenamphore mit Besitzeraufschrift aus Mainz, *Mainzer Archäologische Zeitschrift* 3, 25-56.
- Eiring, J. & J. Lund (eds.) forthcoming. *Transport Amphorae and Trade in the Eastern Mediterranean. Acts of the International Colloquium at the Danish Institute at Athens, 26-29 September, 2002* (Monographs of the Danish Institute at Athens, 5). Athens.
- Empereur, J.-Y. & Y. Garlan 1987. Bulletin archéologique: amphores et timbres amphoriques (1980-1986), *REG* 100, 58-109.
- Empereur, J.-Y. & Y. Garlan 1992. Bulletin archéologique: amphores et timbres amphoriques (1987-1991), *REG* 105, 176-220.
- Empereur, J.-Y. & Y. Garlan 1997. Bulletin archéologique: amphores et timbres amphoriques (1992-1996), *REG* 110, 161-209.
- Esteve Guerrero, M. 1952. Sanlúcar de Barrameda (Cádiz): fábrica de salazón romana en la Algaida, *Noticiario arqueológico hispánico* 1-3, 126-133.
- Étienne, R. 1970. À propos du "garum sociorum", *Latomus* 29, 297-313.
- Étienne, R. & F. Mayet 1998a. Les mercatores de saumure Hispanique, *MEFRA* 110, 147-165.

- Étienne, R. & F. Mayet 1998b. Le *garum* à Pompei. Production et commerce, *REA* 100, 199-215
- Étienne, R. & F. Mayet. 1991. Le *garum* à la mode de Scaurus, in: *Alimenta. Estudios en homenaje al Dr. Michel Ponsich*. (Gerion, Anejos 3). Madrid, 187-194.
- Étienne, R. & F. Mayet. 2002. *Salaisons et sauces de poisson Hispaniques*. Paris.
- Étienne, R., Y. Makaroun & F. Mayet, 1994. *Un grand complexe industriel à Tróia (Portugal)*. Paris.
- Faber, G.L. 1883. *Fisheries of the Adriatic and the Fish Thereof: a report of the Austro-Hungarian Sea-Fisheries, with a Detailed Description of the Marine Fauna of the Adriatic Gulf*. London.
- Fajen, F. (ed.) 1999. *Oppianus: Halieutica*. Stuttgart.
- Fedorov-Davydov, G.A. 1975. O scenach terzaniij i bor'by zverej v pamjatnikach skifo-sibirskogo iskusstva, *Uspechi sredneaziatskoj archeologii* 3, 23-28.
- Finley, M.I. 1999. *The Ancient Economy*. Updated edition by I. Morris. Berkeley.
- Firathi, N. & L. Robert 1964. *Les steles funéraires de Byzance gréco-romaine*. Paris.
- Flower, B. & E. Rosenbaum 1958. *The Roman Cookery Book*. London.
- Foucher, L. 1970. Note sur l'industrie et le commerce des salsamenta et du *garum*, in: *Actes du 93e Congrès National des Sociétés Savantes. Tours 1968. Section d'Archéologie*. Paris, 17-21.
- Francis, R.C., J. Field, D. Holmgren & A. Strom 2001. Historical approaches to the northern California current ecosystem, in: Holm, Smith & Starkey (eds.), 123-139.
- Frank, T. 1936. On the Export Tax of Spanish Harbors. *American Journal of Philology* 57, 87-90.
- Franke, P.R. 1968. *Kleinasien zur Römerzeit. Griechisches Leben im Spiegel der Münzen*. Munich.
- French, R. 1986. Pliny and Renaissance Medicine, in: French, R. & F. Greenaway (eds.) *Science in the Early Roman Empire: Pliny the Elder, His Sources and Influence*. Totowa, N.J.
- Gajdukevič, V.F. 1952a. Raskopki Mirmekija v 1935-1938 gg., *MIA* 25, 135-220.
- Gajdukevič, V.F. 1952b. Raskopki Tiritaki v 1935-1940 gg., *MIA* 25, 15-134.
- Gajdukevič, V.F. 1971. *Das Bosporanische Reich*. Berlin.
- Gallant, T.W. 1985. *A Fisherman's Tale* (Miscellanea Graeca, 7). Gent.
- Gallant, T.W. 1991. *Risk and Survival in Ancient Greece. Reconstructing the Rural Domestic Economy*. Stanford, Cal.
- García y Bellido, A. 1942a. *Fenicios y Cartagineses en Occidente*. Madrid.
- García y Bellido, A. 1942b. La industria pesquera y conserva española en la Antigüedad, *Investigación y Progreso* 13, 1-8.

- Garlan, Y. (ed.) 1999. *Production et commerce des amphores anciennes en Mer Noire. Colloque international organisé à Istanbul, 25-28 mai 1994*. Aix-en-Provence.
- Garlan, Y. 1990. Remarques sur les timbres amphoriques de Sinope, *Comptes Rendus des Académie des Inscriptions* 1990, 490-507.
- Garlan, Y. 2000. *Amphores et timbres amphoriques grecs entre erudition et idéologie*. Paris.
- Garlan, Y. 2002. Bulletin archéologique. Amphores et timbres amphoriques (1997-2001), *REG* 115, 149-215.
- Garnsey, P. 1998. *Cities, Peasants and Food in Classical Antiquity. Essays in Social and Economic History*. Cambridge.
- Garnsey, P. 1999. *Food and Society in Classical Antiquity*. Cambridge.
- Gavriljuk, N.A. 1999. *Istorija ekonomiki stepnoj Skifii v VI-III vv. do n.e.* Kiev.
- Gavriljuk, N.A., V.P. Bylkova & S.N. Kravčenko 1992. *Skifskie poselenija IV v. do n.e. v stepnom Podneprov'e*. Kiev.
- Gavriljuk N.A., V.N. Griščenko & E.N. Jablonovskaja-Griščenko 2001. Ornito-fauna v skifskoj torevtike, in: V.Ju. Zuev et al. (eds.), *Bosporskij fenomen*. St. Petersburg, 260-266.
- Gavriljuk, N.A. & N.P. Olenkovskij 1992. *Pam'jatki skifiv. Arheologična karta Nyžnodniprovs'kogo regionu*. Cherson.
- Gazda, E.K. & A.M. McCann 1987. Reconstruction and function: port, fishery, and villa, in: McCann et al. 1987, 137-159.
- Gil Mantas, V. 1999. As *villae* marítimas e o problema do povoamento do litoral português na época romana, in: Gorges & Rodríguez Martín (eds.) 1999, 135-156.
- Gorges, J.-G. 1979. *Les villas hispano-romaines. Inventaire et problématiques archéologiques*. Paris.
- Gorges, J.-G. (ed.) 1990. *Les villes de Lusitanie romaine; hiérarchies et territoires. Table ronde internationale du CNRS, Talence, le 8-9 décembre 1988*. Paris.
- Gorges, J.-G. & G. Rodríguez Martín (eds.) 1999. *Économie et territoire en Lusitanie romaine*. Madrid.
- Gozables Craviota, E. 1997. *Economía de la Mauritania Tingitana (Siglos I A. de C. – II D. de C.)*. Ceuta.
- Grace, V.R. 1962. Stamped Handles of Commercial Amphoras, in: H.D. Colt (ed.), *Excavations at Nessana (Auja Hafir, Palestine)*, 1. London, 106-130.
- Grakov, B.N. 1954. *Kamenskoe gorodišče na Dnepre (MIA, 36)*. Moscow.
- Grau Almero, E., G. Pérez Jorda, P. Iborra Eres, J. Rodrigo García, C.G. Rodríguez Santan & S. Carrasco Porras 2001. Gestión de Recursos y Economía, in: Aranegui Gascó (ed.) 2001, 191-230.
- Grimal, P. & T. Monod 1952. Sur la véritable nature du "garum", *REA* 54, 27-38.
- Gualandri, I. 1967. *Incerti auctori in Oppiani Halieutica paraphrasis*. Milan.
- Gudger, E.W. 1924. Pliny's *Historia Naturalis*: the Most Popular Natural History Ever Published, *Isis* 6, 269-281.

- Haley, E.W. 1990. The Fish Sauce Trader L. Iunius Puteolanus. *ZPE* 80, 72-78.
- Hannestad, L., V.F. Stolba & A.N. Ščeglov (eds.) 2002. *Panskoye I. Vol. 1: The Monumental Building U6*. Aarhus.
- Hart, J.B. & J. Reynolds 2002. *Fish Biology* (Handbook of fish biology and fisheries, 1). Oxford.
- Head, B.V. 1911. *Historia numorum. A manual of Greek numismatics*. Oxford.
- Hesnard, A. 1980. Un dépôt augustéen d'amphores à La Longarina, Ostie, in: D'Arms & Kopff (eds.) 1980, 141-156
- Hoddinott, R.F. 1973. *Bulgaria in Antiquity*. New York.
- Hörig, M. 1984. Dea Syria. Atargatis, *ANRW* 2.17.3, 1536-1581.
- Hoffman, G. & H.D. Schulz 1988. Coastline Shifts and Holocene Stratigraphy on the Mediterranean coast of Andalucia (Southeastern Spain), in: Raban (ed.) 1988, 53-70.
- Holm, P., T. Smith, & D. Starkey (eds.) 2001. *The Exploited Seas: New Directions for Marine Environmental History* (Research in Maritime History, 21). St. John's, Newfoundland.
- Il'inskaja, V.A. & A.I. Terenožkin 1983. *Skifija VII-IV vv. do n.e.* Kiev.
- Immerzeel, M. 1990. *Negotiator Allecarius*. Fabrication et commerce de sauce de poisson dans le Nord-ouest de l'Empire Romain. *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheiden te Leiden*, 70, 183-192.
- Ivanova, N.V. 1994. Fish Remains from Archaeological Sites of the Northern Part of the Black Sea Region (Olbia, Berezan), *Offa* 51, 278-283.
- Jacobsen, A.L. Lund 2003. *Limfjordens fiskeri 1890-1925, biologi, økonomi og forvaltning*. Unpublished dissertation, University of Southern Denmark, Esbjerg.
- Jardin, C. 1961. Garum et sauces de poisson de l'antiquité, *Rivista di Studi Liguri* 27, 70-96.
- Jefremow, N. 2003. Der Wein vom Taurischen Chersonesos in Thrakien. Zur Geschichte der Handelsbeziehungen zwischen dem Nord- und Westgestade des Pontos Euxeinos während der hellenistischen Zeit, *MünstBeitr* 22, 27-47.
- Jennings, S., M. Kaiser & J. Reynolds 2001. *Marine Fisheries Ecology*. Oxford.
- Jodin, A. 1957. Note préliminaire sur l'établissement pré-romain de Mogador (campagnes 1956-1957), *Bulletin d'Archéologie Marocaine* 2, 9-40.
- Jodin, A. 1967. *Les établissements du Roi Juba II aux Îles Purpuraires (Mogador)*. Tanger.
- Jöhrens, G. 1999. *Amphorenstempel im Nationalmuseum von Athen: zu den von H.G. Lolling aufgenommenen „unedierten Henkelinschriften“*. Mit einem Anhang: *Die Amphorenstempel in der Sammlung der Abteilung Athen des Deutschen Archäologischen Instituts*. Mainz.
- Jones, A.K.G. 1988. Fish Bones from Excavations in the Cemetery of St. Mary Bishophill Junior. *The Archaeology of York* 15, 126-131.

- Jones, H.L. 1924. *The Geography of Strabo. With an English translation by H.L. Jones.* Cambridge, Mass.
- Kac, V.I., S.Y. Monachov, V.F. Stolba & A.N. Ščeglov 2002. Tiles and Ceramic Containers, in: Hannestad, Stolba & Ščeglov (eds.) 2002, 102-126.
- Kadeev, V.I. 1962. Rybolovnyj promysel u Chersonesi v peršich vikach n.e., *Učeni zapysky Charkivs'kogo deržavnogo universitetu* 124; *Trudy istoričnogo fakul'tetu* 9, 59-79.
- Kadeev, V.I. 1970. *Očerki istorii ekonomiki Chersonesa Tavričeskogo v I – IV vekach n.e.* Charkov.
- Kadeev, V.I. & S.G. Ryzov 1973. Novaja rybozasoločnaja cisterna v Chersonese, *Archeologija Kiev* 12, 76-80.
- Karyškovskij, P.O. 1982. Ob izobraženii orla i del'fina na monetach Sinopy, Istrii i Ol'vii, in: V.L. Janin et al. (eds.) *Numizmatika antičnogo Pričernomor'ja.* Kiev, 80-98.
- Kastanajan, E.G. 1958. Raskopki Porfmija v 1953 g., *SovA* 3, 203-207.
- Kawamura, Y. & M. R. Kare (eds.) 1987. *Umami. A Basic Taste.* New York.
- Kbiri Alaoui, M. 2000. *L'établissement punico-maurétanien de Kouass.* Rabat.
- Keay, S. 1984. Decline or Continuity? The Coastal economy of the *Conventus Terraconensis* from the fourth century until the late sixth century, in: Blagg et al. (eds.) 1984, 552-577.
- Kent, J.H. 1953. Stamped Amphora Handles from the Delian Temple Estates, in *Studies Presented to David Moore Robinson*, 2. St. Louis, 127-134.
- Keydell, Rudolf 1937. Opians Gedicht von der Fischerei und Aelians Tiergeschichte, *Hermes* 72, 411-434.
- King, A. & M. Henig (eds.) 1981. *The Roman West in the Third Century.* Oxford.
- Knapp, R.C. & F.H. Stanley, Jr. 2000. Lusitania-Baetica, in Talbert (ed.) 2000, 415-439.
- Koehler, C.G. 1996. Wine Amphoras in Ancient Greek Trade, in: P.E. McGovern, S.J. Fleming & S.H. Katz (eds.), *The Origins and Ancient History of Wine.* Amsterdam, 323-337.
- Köhler, H.K.E. 1832. *Τάριχος, ou recherches sur l'histoire et les antiquités des pêcheries de la Russie méridionale, Mémoires de l'Academie Impériale de Sciences de St Peterburg*, 6e série, t. 1. St. Petersburg.
- Koehne, B. 1857. *Opisanie muzeuma pokojnogo knjazja V.V. Kočubeja i izsledovanija ob istorii i numizmatike grečeskich poselenij v Rossii, ravno kak carstv: Pontijskogo i Bosfora Kimmerijskogo*, 1. St. Petersburg.
- Koltuchov, S.G. 1997. Obrazy ryb v greko-varvarskom iskusstve Severnogo Pričernomor'ja, *Archeologija Kryma* 1.1, 59-67.
- Koltuchov, S.G., V.A. Kolotuchin & A.E. Kislyj 1994. O rabotach Severo-Krymskoj ekspedicii, in: V.A. Kutajsov (ed.), *Archeologičeskie issledovanija v Krymu. 1993 god.* Simferopol, 153-162.

- Korol'kova, E.F. 1998. Ikonografija chiščnoj pticy v skifskom zverinom stile VI-IV vv. do n.e., in: I. Ja. Frojanov et al. (eds.), *Istorija i kul'tura drevnich i srednevekovykh občestv. Problemy archeologii*. St. Petersburg, 166-178.
- Kraay, C.M. 1976. *Archaic and Classical Greek Coins*. Berkeley.
- Kruglikova, I.T. 1963. Itogi semiletnich raskopok poselenija u d. Semenovki, *KSIA* 95, 43-51.
- Kuprin, A.I. 1986. Lestrigony, in: A.I. Kuprin, *Reka žizni: povesti i rasskazy*. Leningrad.
- Kutajsov, V.A. 1986. K numizmatike Kerkinitidy 5 v. do n.e., *VDI* 2, 94-97.
- Kutajsov, V.A. 1991. Monety Kerkinitidy 5 v. do n.e., *VDI* 1, 46-69.
- Kutajsov, V.A. 1995. Cast money and coins of Kerkinitis of the fifth century BC, *Ancient civilizations* 2.1, 39-59.
- Kuz'mina, E.E. 1976. O semantike izobraženij na Čertomlyckoj vase, *SovA* 3, 68-75.
- Kuz'mina, E.E. 1987. Sjužet bor'by chiščnika i kopytnogo v iskusstve "zverinogo" stilja Evrazijskich stepej skifskoj epochi, in: A.I. Martynov & V.I. Molodin (eds.) *Skifo-sibirskij mir: iskusstvo i ideologija*. Novosibirsk, 3-12.
- Lagóstena Barrios, L. 2001. *La producción de salsas y conservas de pescado en la Hispania Romana (II a.C – VI d.C)*. Barcelona.
- Lawall, M.L. 1995. Transport amphoras and trademarks: imports to Athens and economic diversity in the fifth century B.C. Ph.D. dissertation, University of Michigan.
- Lawall, M.L. 1998. Ceramics and positivism revisited: Greek transport amphoras and history, in: H. Parkins & C. Smith (eds.), *Trade, Traders and the Ancient City*. London, 75-101.
- Lawall, M.L. 1999. Studies in Hellenistic Iliion: Transport Amphoras from the Lower City, *Studia Troica* 9, 187-224.
- Lawall, M.L. 2000. Graffiti, Wine Selling, and the Reuse of Amphoras in the Athenian Agora, ca. 430 to 400 B.C., *Hesperia* 69, 3-90.
- Lebedev, V.D. & Ju. E. Lapin 1954. K voprosu o rybolovstve v Bosporskom carstve, *MIA* 33, 197-214.
- Lepiksaar, J. 1973. Fischknochenfunde aus der phönizischen Faktorei von Toscanos, in: Boessneck (ed.) 1973, 109-119.
- Lernau, O., H. Cotton & Y. Goren 1996. Salted Fish and Fish Sauces from Masada: A Preliminary Report, *Archaeofauna* 5, 35-41.
- Leskov, O.M. 1972. *Skarby kurganiv Chersonščiny*. Kiev.
- Lestocquoy, J. 1952. Épices, médecine et abbayes, in: *Études mérovingiennes. Actes des journées de Poitiers, 1-3 Mai 1952*. Paris, 179-186.
- Lindberg, G.U. 1971. *Families of the fish of the world. A check list and a key*. Leningrad.
- Liou, B. 1982. Informations archéologiques: Corse du Sud, *Gallia* 40, 439-444.
- Liou, B. & R. Marichal 1978. Les inscriptions peintes sur amphores de l'anse Saint-Gervais à Fos-sur-mer, *Archeonautica* 2, 165, No. 169.

- Liou, B. & E. Rodríguez Almeida 2000. Les inscriptions peintes des amphores du Pecio Gandolfo (Almería). *MEFRA* 112, 7-25.
- Litvinskij, B.A. 1975. Pamirskaja kosmologija, *Strany i narody Vostoka* 16, 253-257.
- Lomtadze, G. & D. Zhuravlev forthcoming. Amphorae from a Late Hellenistic Cistern at Pantikapaion, in Eiring & Lund (eds.) forthcoming.
- Lopetcharat, K., Y. J. Choi, J. W. Park & M. A. Daeschel 2001. Fish Sauce Products and Manufacturing, *Food Reviews International* 17, 65-88.
- Lowe, B.J. 1997. The Trade and Production of Garum and its Role in the Provincial Economy of Hispania Tarraconensis. Ph.D. dissertation, Edinburgh.
- Loza Azuaga, M.L. & J. Beltrán Fortes. 1988. Estudio arqueológico del yacimiento romano de Haza Honda (Málaga), in: Ripoll Perelló (ed.) 1988, 991-1001.
- Lund, J. 2002. Olie på vandene? in: L.K. Jacobsen & A.M. Carstens (eds.), *Til Jens Erik Skydsgaard* (Meddelelser fra Klassisk Arkæologisk Forening, Suppl. 1), 15-21.
- Lund, J. forthcoming. Oil on the Waters? Reflections on the Contents of Hellenistic Transport Amphorae from the Aegean in: Eiring & Lund (eds.) forthcoming.
- Mabesoone, J.M. 1963. Observations on the sedimentology and geomorphology of the Guadalete drainage area (Cádiz, Spain), *Geologi Mijnbouw* 42, 309-328.
- McCann, M., J. Bourgeois, E.K. Gazda, J.P. Oleson & E.L. Will 1987. *The Roman port and fishery of Cosa; a center of ancient trade*. Princeton, N.J.
- Mack, G.R. (ed.) 2003. *Crimean Chersonesos. City, Chora, Museum, and Environs*. Austin, Texas.
- MacKendrick, P., 1980. *The North African Stones Speak*. Chapel Hill, N.C.
- Mackie, I. M., R. Hardy & G. Hobbs. 1971. *Fermented Fish Products* (FAO Fisheries Reports, 100). Rome.
- Mancevič, A. 1987, in: A.Ju. Alekseev, *Kurgan Solocha*. Leningrad.
- Marčenko, K.K, V.G. Žitnikov & V.P. Kopylov 2000. *Die Siedlung Elizavetovka am Don*. Moscow.
- Marlière, É. 2002. *L'outre et le tonneau dans l'Occident romain*. Montignac.
- Marquardt, J. 1892. *La vie privée des Romains* (Manuel des antiquités Romaines, 15). Paris.
- Marques da Costa, A.I. 1930-31. Estudos sobre algumas estações da época luso-romana nos arredores de Setúbal, *O Arqueologo Português* 29, 2-31.
- Marques da Costa, J. 1960. *Novos elementos para a localização de Cetobriga*. Setúbal.
- Marti, Ju. 1941. Pozdne-ellinističeskie nadgrobija Bospora kak istoriko-kul'turnyj dokument, *SovA* 7, 31-44.
- Marti, Ju. 1941a. Novye dannye o rybnom promysle v Bospore Kimmerijskom po raskopkam Tiritaki i Mirmekija, *SovA* 7, 94-106.

- Marti, Ju. 1941b. Rybozasoločnye vannы Tiritaki, *MIA* 4, 93-95.
- Martin, G. 1970. Las pesquerías romanas de la costa de Alicante, *Saguntum: Papeles del laboratorio de arqueología de Valencia* 10, 139-153.
- Martin, G. & M.D. Serres. 1970. *La factoría pesquera de Punta de l'Arenal y otros restos romanos de Jávea (Alicante)*. Valencia.
- Martin-Bueno, M., J. Liz Guiral & M.-L. Cancela Ramirez de Arellano 1984. Baelo Claudia: Sector Sur 1981-1983 (Avance), *Mélanges de la Casa de Velazquez* 20, 487-496.
- Martin-Kilcher, S. 1987. *Die römischen Amphoren aus Augst und Kaiseraugst. Ein Beitrag zur römischen Handels- und Kulturgeschichte. 1: Die südspanischen Ölamphoren (Gruppe 1)* (Forschungen in Augst, 7/1). Augst.
- Martin-Kilcher, S. 1990. Fischsauce und Fischkonserven aus dem römischen Gallien. *Archäologie der Schweiz* 13, 37-44.
- Martin-Kilcher, S. 1994a. *Die römischen Amphoren aus Augst und Kaiseraugst. Ein Beitrag zur römischen Handels- und Kulturgeschichte. 2: Die Amphoren für Wein, Fischsauce, Sudfrüchte (Gruppen 2-24)* (Forschungen in Augst, 7/2). Augst.
- Martin-Kilcher, S. 1994b. *Die römischen Amphoren aus Augst und Kaiseraugst. Ein Beitrag zur römischen Handels- und Kulturgeschichte. 3: Archäologische und naturwissenschaftliche Tonbestimmungen* (Forschungen in Augst, 7/3). Augst.
- Masanov, N.E. 1989. Tipologija skotovodčeskogo chozjajstva kočevnikov Evrazii, in: *Vzaimodejstvie kočevykh kul'tur i drevnih civilizacij*. Alma-Ata, 55-81.
- Mehl, A. 1987. Der Überseehandel von Pontos, in: *Stuttgarter Kolloquium zur historischen Geographie des Altertums 1 1980*, Bonn, 103-186.
- Michel, S. 1995. *Der Fisch in der skythischen Kunst* (Europäische Hochschulschriften, 38.52). Frankfurt.
- Minns, E.H. 1913. *Scythians and Greeks*. Cambridge.
- Molina, F. & C. Huertas 1985. *Almuñécar en la Antigüedad*, II. Granada.
- Mongait, A. 1959. *Archaeology in the U.S.S.R.* Moscow.
- Muñoz Vicente, Á., G. de Frutos Reyes & N. Berriatua Hernández 1988. Contribución a las orígenes y difusión comercial de la industria pesquera y conservera Gaditana a través de las recientes aportaciones de las factorías de salazones de la Bahía de Cadiz, in: Ripoll Perelló (ed.) 1988, 487-508.
- Mušmov, N.A. 1912. *Antičnite monety na Balkanskija poluostrov i monetite na bulgarskite care*. Sofia.
- Naster, P. 1959. *Catalogue des monnaies grecques. La collection Lucien de Hirsch*. Bruxelles.
- Nicolaou, K. & A. Flinder 1976. Ancient fish-tanks at Lapithos, Cyprus, *International Journal of Nautical Archaeology and Underwater Exploration* 5.2, 133-141.
- Nikol'skij, G.V. 1937. K poznaniju ichtiofauny r. Kubani, *Bjulleten' Moskovskogo obščestva ispytatelej prirody. Otdelenie biologii* 45.2, 121-124.

- Nock, A.J. & C.R. Wilson (eds.) 1931. *The Works of Francis Rabelais I-II*. New York.
- Nolla-Brufau, J.M. 1984. Excavaciones recientes en la ciudadela de Roses. El edificio Bajo-imperial, in: Blagg et al. (eds.) 1984, 430-459.
- Ørsted, P. 1998. Salt, fish and the Sea in the Roman Empire, in: I. Nielsen & H.S. Nielsen (eds.), *Meals in a Social Context. Aspects of the Communal Meal in the Hellenistic and Roman World* (Aarhus Studies in Mediterranean Antiquity, 1). Aarhus, 13-35.
- Olson, S. D. & A. Sens 2000. *Archestratos of Gela. Greek Culture and Cuisine in the Fourth Century BCE*. Oxford.
- Onajko, N.A. 1956. O fanagorijskich gruzilach, *MIA* 56, 154-163.
- Onajko, N.A. 1976a. O vozdejstvii grečeskogo iskusstva na meoto-skifskij zverinyj stil', *SovA* 3, 76-86.
- Onajko, N.A. 1976b. Zverinyj stil' i antičnyj mir Severnogo Pričernomor'ja v VII – IV vv. do n.e., in: A.I. Meljukova & M.G. Moškova (eds.) *Skifo-sibirskij zverinyj stil' v iskusstve narodov Evrazii*. Moscow, 66-73.
- Orešnikov, A.V. 1892. *Materialy po drevnej numizmatike Černomorskogo poberež'ja*, Moscow.
- Ostapenko, I.A. 2001. Pam'jatki osilosti skifskogo času na ostrovi Chortica, *Arheologia Kiev* 1, 51-68.
- Pack, R. (ed.) 1963. *Onirocriticon Libri V*. Leipzig.
- Panella, C. 1972. Annotazioni in margine alle stratigrafie delle Terme ostiensi del Nuotatore, *Recherches sur les amphores romaines. Collection de l'École Française de Rome*, 10. Rome, 151-165.
- Paoli, U. 1975 (1940). *Rome, Its People, Life and Customs*. Trans. by R.D. McNaughton. Florence.
- Parker, A.J. 1977. Lusitanian amphoras, in: *Méthodes classiques et méthodes formelles dans l'étude des amphores. Actes du Colloque de Rome, 27-29 Mai 1974* (Collection de l'École Française de Rome, 32), Paris, 35-46.
- Parker, A.J. 1992. *Ancient Shipwrecks of the Mediterranean and the Roman Provinces* (BAR International Series, 580). Oxford.
- Parkins, H.M. (ed.) 1997. *Roman Urbanism. Beyond the Consumer City*. London.
- Pashkevich, G.A. 2001. Archaeobotanical studies on the northern coast of the Black Sea, *Eurasia Antiqua* 7, 511-67.
- Paterson, J. 1998. Trade and Traders in the Roman World: Scale, Structure, and Organisation, in: H. Parkins & C. Smith (eds.) *Trade, Traders and the Ancient City*. London, 149-167.
- Peacock, D.P.S. 1974. Amphorae and the Baetican Fish Industry, *The Antiquaries Journal* 54, 232-243.
- Peacock, D.P.S. 1977. Roman Amphorae: Typology, Fabric and Origins, in *Méthodes classiques et méthodes formelles dans l'étude des amphores* (Collection de l'École Française de Rome, 32). Rome, 261-278.

- Peacock, D.P.S. & D.F. Williams 1985. *Amphorae and the Roman Economy: an Introductory Guide*. London and New York.
- Peacock, D.P.S. & D.F. Williams 1991. *Amphorae and the Roman Economy: an introductory guide* (paperback edition). London.
- Pekáry, I. 1999. *Repertorium der hellenistischen und römischen Schiffsdarstellungen* (*Boreas*, Beiheft 8). Münster.
- Pelletier, A. 1988. Belo: une cite romaine du détroit, in: Ripoll Perelló (ed.) 1988, 801-810.
- Pellicer Catalán, M. 2002. Phoenician and Punic Sexi, in: Bierling (ed.) 2002, 49-77.
- Pereira Menaut, G. (ed.) 1988. *Actas 1ero Congreso Peninsular de Historia Antigua*, 1. Santiago de Compostela.
- Pogrebova, N.N. 1958. Pozdneskifskie gorodišča na Nižnem Dnepre (gorodišča Znamenskoe i Gavrilovskoe), in: K.F. Smirnov (ed.) *Pamjatniki skifo-sarmatskoj archeologii v Severnom Pričernomor'e* (MIA, 64). Moscow, 103-247.
- Poinssot, Cl. 1965. Quelques remarques sur les mosaïques de la maison de Dionysos et d'Ulysse à Thugga (Tunisie), in: *La mosaïque greco-romaine. (Colloque International, Paris 29 Août – 3 Septembre 1963)*. Paris, 219-232.
- Polos'mak, N. 2001. *Vsadniki Ukoka*. Novosibirsk.
- Ponsich, M. 1967. Kouass, port antique et carrefour des voies de la Tingitane, *Bulletin d'Archéologie Marocaine* 7, 369-405.
- Ponsich, M. 1968. *Alfarias de época fenicia y púnico-mauritana en Kuass* (Arcila, Marruecos). Valencia.
- Ponsich, M. 1970. *Recherches archéologiques a Tanger et dans sa région*. Paris.
- Ponsich, M. 1975. Pérennité des relations dans le circuit de Déroit de Gibraltar, *ANRW* 2.3, 655-684.
- Ponsich, M. 1976. A propos d'une usine antique de salaisons à Belo (Bolonia-Cadix), *Mélanges de la Casa de Velazquez* 12, 69-79.
- Ponsich, M. 1981. *Lixus: Le quartier des temples (étude préliminaire)*. Rabat.
- Ponsich, M. 1988. *Aceite de oliva y salazones de pescado. Factores geo-economicos de Betica y Tingitania*. Madrid.
- Ponsich, M. & M. Tarradell 1965. *Garum et industries antiques de salaison dans la Méditerranée occidentale*. (Bibliothèque de l'École des Hautes Études Hispaniques, 36). Paris.
- Powell, O. 2003. *Galen. On the Properties of Foodstuffs*. Cambridge.
- Purpura, G. 1982. Pesca e stabilimenti antichi per la lavorazione del pesce in Sicilia: I. S. Vito (Trapani), Cala Minnola (Levanzo), *Sicilia Archeologica* 48, 45-60.
- Raban, A. (ed.) 1988. *Archaeology of Coastal Changes; Proceedings of the First International Symposium "Cities on the Sea – Past and Present" Haifa, Israel, September 22-29, 1986*. Oxford.
- Raevskij, D.S. 1977. *Očerki ideologii skifo-sakskich plemen*. Moscow.
- Raevskij, D.S. 1985. *Model' mira skifskoj kul'tury. Problemy mirovozzrenija iranojazyčnych narodov evrazijskich stepej I tysjačelija do n.e*. Moscow.

- Rau, V. 1984. *Estudos sobre a história do sal português*. Lisbon.
- Rebuffat, R. 1972. Les fouilles de Thamusida et leur contribution à l'histoire du Maroc, *Bulletin d'Archéologie Marocaine* 8, 51-65.
- Rebuffat, R. 1977. *Thamusida*, III. Rome.
- Reece, R. 1981. The Third Century: Crisis or Change? in: King & Henig (eds.) 1981, 27-38.
- Remarck, P. 1912. *De Amphorarum Inscriptionibus Latinis Quaestiones Selectae*. Tübingen.
- Rhode, P. 1890. *Thynnorum Captura Quanti Fuerit apud Veteres Momenti*. Leipzig.
- Ribeiro, M. 1971. Anzois de Troia. Subsúdios para o estudo da pesca no período lusitano-romano, in: de Alarcão (ed.) 1971, 391-402.
- Ripoll López, S. 1988. El atún en las monedas antiguas del estrecho y su simbolismo económico y religioso, in: Ripoll Perelló (ed.) 1988, 481-486.
- Ripoll Perelló, E. (ed.) 1988. *Actas de Congreso Internacional el Estrecho de Gibraltar, Ceuta – Noviembre 1987*, I. Madrid.
- Romančuk, A.I. 1973. Novye materialy o vremeni stroitel'stva rybozasoločnykh cistern v Chersonese, *Antičnaya drevnost' i srednie veka* 9, 45-53.
- Romančuk, A.I. 1977. Plan rybozasoločnykh cistern v Chersonese, *Antičnaya drevnost' i srednie veka* 14, 18-20.
- Rondelet, G. 1554-1555. *Libri De Piscibus Marinis*. Lyon.
- Rostovcev, M.I. 1913. Predstavlenie o monarchičeskoj vlasti v Skifii i na Bospore, *IAK* 49, 1-62.
- Rostovtzeff, M.I. 1929. *The Animal Style in South Russia and China* (Princeton monographs in Art and Archaeology, 14). Princeton, N.J.
- Rostovtzeff, M.I. 1941. *The Social and Economic History of the Hellenistic World*. Oxford.
- Rostovtzeff, M.I. 1957 (1926). *The Social and Economic History of the Roman Empire*, 2nd ed. Oxford.
- Rudenko, S.I. 1953. *Kul'tura naselenija Gornogo Altaja v skifskoe vremja*. Moscow.
- Rudenko, S.I. 1960. *Kul'tura naselenija Centralnogo Altaja v skifskoe vremja*. Moscow and Leningrad.
- Ruiz Mata, D. 2002. The Ancient Phoenicians of the 8th and 7th Centuries B.C. in the Bay of Cádiz: State of the Research, in: Bierling (ed.) 2002, 155-198.
- Rusjaeva, A.S. 1992. *Religija i kul'ty antičnoj Ol'vii*. Kiev.
- Sahrhage, D. & Lundbeck, J. 1991. *A History of Fishing*. Hamburg.
- Ščeglov, A.N. 1969. Novyj metod opredelenija veličiny ryb po češue i nekotorye dannye o promysle kefali v Severo-Zapadnom Krymu v 1 v. do n.e., *KSIA* 119, 128-130.
- Ščeglov, A.N. 1978. *Severo-Zapadnyj Krym v antičnuju epochu*. Leningrad.
- Ščeglov, A.N. 2002. Monumental Building U6, in: Hannestad, Stolba & Ščeglov (eds.), 29-98.

- Ščeglov, A.N. & V.D. Burdak 1965. O promysle ryby u beregov Tarchankuta v antičnuju epochu, *Rybnoe chozjastvo* 3, 21-23.
- Schönert-Geiss, E. 1970. *Die Münzprägung von Byzantion, I. Autonome Zeit* (Griechisches Münzwerk. Schriften zur Geschichte und Kultur der Antike, 2). Berlin.
- Schönert-Geiss, E. 1972. *Die Münzprägung von Byzantion, II. Kaiserzeit* (Griechisches Münzwerk. Schriften zur Geschichte und Kultur der Antike, 2). Berlin.
- Semenov-Zuser, S. 1947. Rybnyj rynek v Chersonese (Marché des poissons à Chersonèse Taurique), *VDI* 1947:2, 237-246.
- Semenov-Zuser, S.A. 1947a. *Rybnoe chozjastvo i rynki na juze SSSR v drevnosti. Tabula marmorea universitatis Charcovensis* (Pamjatnikiistorii ekonomiki ikul'tury drevnego Severnogo Pričernomor'ja, 1). Charkov.
- Semenov-Zuser, S.A. 1947b. Rybnyj rynek v Chersonese, *VDI* 1947, 2, 237-246.
- Šelov, D.B. 1970. Tanais i Nišnjij Don v III-I vv. do n.e. Moscow.
- Shelov, D.B. 1978. *Coinage of the Bosphorus VI-II centuries BC* (BAR International Series, 46). Oxford.
- Smidth, J.K. 1875. Historical Observations on the Condition of the Fisheries among the Ancient Greeks and Romans, and on their Mode of Salting and Pickling Fish. (U.S. Congress, Senate. 43rd Congress Miscellaneous Documents, 108). Washington. [Also published in Danish in *Tidsskrift for Fiskeri*, 1871, 34-62].
- Smith, T. 1994. *Scaling Fisheries*. Cambridge.
- Soares, J. 1980. *Estação romana de Tróia*. Setúbal.
- Sokol'skij, N.I. 1968. Svjatilšč e Afrodity v Kepach, *SovA* 1968, 101-118.
- Sotomayor, M. 1971. Nueva factoría de salazones de pescado en Almuñécar (Granada), *Noticiario arqueológico hispánico* 15, 147-178.
- Sternberg, M. 2000. Donnée sur les produits fabriqués dans une officine de Neapolis (Nabeul, Tunisie), *MEFRA* 112, 133-153.
- Stoddart, J.L. 1850. On the Inscribed Pottery of Rhodes, Cnidus, and Other Greek Cities, *Transactions of the Royal Society of Literature of the United Kingdom*, 2nd Series, 3, 1-127.
- Stoddart, J.L. 1853. On the Lettered Vase-Stamps from Greek Cities of the Mediterranean and Euxine seas, *Transactions of the Royal Society of Literature of the United Kingdom*, 2nd Series, 4, 1-67.
- Stolba, V.F. 1991. Dom IV v. do n.e. na poselenii Panskoe I (raskopki 1987 g.), *KSIA* 204, 78-84.
- Stolba, V.F. 2002. Graffiti and dipinti, in: Hannestad, Stolba & Ščeglov (eds.), 228-244.
- Struck, M.L. 1912. *Die antiken Münzen von Thrakien*. I, 1. *Die Münzen der Thraker und der Städte Abdera, Ainos, Anchialos* (Die antiken Münzen Nord-Griechenlands, 2). Berlin.

- Surov, E.G. 1948. Chersonesskie cisterny. (Po archivnym dannym), *Učenyje zapiski Sverdlovskogo gosudarstvennogo pedagogičeskogo instituta* 4, 3-47.
- Sutherland, C.H.V. 1939. *The Romans in Spain*. London.
- Tailliez, P. 1961. Travaux de l'été 1958 sur l'épave de "Titan" à l'île de Lévant (Toulon), in: *Atti del II Congresso Internazionale di Archaeologia Sottomarina, Albenga 1958*. Bordighera, 173-198.
- Talbert, R. (ed.) 2000. *The Barrington Atlas of the Greek and Roman World*. Princeton.
- Tarradell, M. 1955. La crisis del siglo III de J.-C. en Maurruecos, *Tamusida III*, 75-105.
- Tarradell, M. 1968. *Economía de la colonización fenicia*. Barcelona.
- Tavares da Silva, C. 1980. *Escavações arqueológicas na Praça do Bocage: 2000 anos de historia*. Setúbal.
- Tavares da Silva, C. & J. Soares. 1993. *Ilha do Pessegueiro. Porto romano da costa alentejana*. Lisbon.
- Terenožkin, A.I., V.A. Il'inskaja, E.V. Černenko & B.N. Mozolevskij 1973. Skifskie kurgany Nikopol'sčiny, in: A.I. Terenožkin (ed.), *Skifskie drevnosti*. Kiev, 113-187.
- Testaguzzi, O. 1970. *Portus*. Rome.
- Thayer, P. 2001ff. Atlas of Roman Pottery. <http://www.potsherd.uklinux.net/>. Cited March 2003.
- Tichij, M. 1917. *Ančous Chersonesa Tavričeskago*. (Abstract from the *Vestnik rybopromyšlennosti* 1-3, 1917). Petrograd.
- Tokarev S.A. (ed.) 1998. *Mify narodov mira* (Encyklopedija, 1). Moscow.
- Tolstoj, I.I. 1953. *Graffiti grečeskich gorodov Severnogo Pričernomor'ja*. Moscow.
- Toporov, V.N. 1972. K proischoždeniju nekotorych poetičeskich simvolov. Paleolitičeskaja epoha, in: E.M. Meletinskij (ed.), *Rannie formy iskusstva*. Moscow, 77-103.
- Tozer, H.F. 1893. *Selections from Strabo. With an introduction on Strabo's life and works*. Oxford.
- Tsetschkladze, G.R. 1998. Trade on the Black Sea in the archaic and classical periods: some observations, in: H. Parkins, H. & C. Smith (eds.), *Trade, Traders and the ancient City*. London, 52-74.
- Uerpmann, M. 1972. Archäologische Auswertung der Meeresmolluskenreste aus der west-phönizischen Faktorei Toscanos, *Madriider Mitteilungen* 13, 164-171.
- Van Neer, W. & A. Lentacker 1994. New Archaeological Evidence for the Consumption of Locally-produced Fish Sauce in the Northern Provinces of the Roman Empire, *Archaeonautica* 3, 53-62.
- Van Veen, A.G. 1965. Fermented and Dried Seafood Products in Southeast Asia, in: G. Borgström (ed.), *Fish as Food*, 3. Paris, 227-250.
- Vasmer, M. 1923. *Untersuchungen über die ältesten Wohnsitze der Slaven, I: Die Iranier in Südrussland*. Leipzig.

- Vinokurov, N.I. 1994. Rybozasoločnye komplekxy chory Evropejskogo Bospora, *RosA* 1994, 4, 154-170.
- Voskresensky, N.A., 1965. Salting of Herring, in: G. Borgström (ed.), *Fish as Food*, 3. Paris, 107-131.
- Waddington, W.H., E. Babelon & Th. Reinach 1904. *Recueil général des monnaies grecques d'Asie Mineure*. I, 1. *Pont et Paphlagonie*. Paris.
- Waelkens, M., W. Van Neer, B. De Cupere & I. Beuls 2003. Hunting and stockbreeding, in: Vanhaverhelke, H. & M. Waelkens, *The Chora of Sagalassos. The Evolution of the Settlement Pattern from Prehistoric until Recent Times* (Studies in Eastern Mediterranean Archaeology, 5). Leuven, 58-60.
- Whittaker, C.R. 1994. *Frontiers of the Roman Empire: A Social and Economic Study*. London.
- Wilkins, J. 2000. *The Boastful Chef: The Discourse of Food in Ancient Greek Comedy*. Oxford.
- Wilkins, J. 2001. Les poissons faisaient-ils partie de la diète ancienne? in: J.-N. Corvisier & M. Bellancourt (eds.), *Démographie et médecine*. Arras, 183-191.
- Will, E.L. 2001. Truth in Roman Labeling? *AJA* 105, 263.
- Williams, C.K. 1979. Corinth, 1978: Forum Southwest, *Hesperia* 48, 105-144.
- Wright, G.R.H. 1990. Of fish and men. Fish symbols in ancient religion, *JPrehistRel*, 3-4, 30-44.
- Yamaguchi, S. & K. Ninomiya. 1998. What is Umami? *Umami*. Special issue of *Foods Reviews International* 14, 123-138.
- Zahn, R. 1910. Garum, *RE* 7.1, 841-849.
- Zeepvat, R.J. 1988. Fishponds in Roman Britain, in: Aston (ed.) 1988, 17-26.
- Zelenin, D.K. 1991. *Vostočnoslavjanskaja etnografija*. Moscow.
- Zevi, F. 1966. Appunti sulle anfore romane, *Archeologia classica* 18, 208-247.
- Žitnikov, V.D. 1992. *Nižnee Podon'e v 6 – pervoj treti 3 vv. do n.e. (ekonomičeskaja charakteristika)*. *Avtoreferat dissertacii*. Moscow.
- Zograf, A.N. 1951. *Antičnye monety* (MIA, 16). Moscow.
- Zograph, A.N. 1977. *Ancient coinage* (BAR International series, 33). Oxford.
- Zolotarev, M.I. 1986. Novye materialy o vzaimootnošenijach Ol'vii i Zapadnogo Kryma v 6 – 5 vv. do n.e., *VDI* 1986.2, 88-93.