

METAL OBJECTS

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The collection of metal objects from the excavation of building U6 is fairly large and varied. In terms of their total number, the finds yield place only to the collection of pottery and other ceramic objects, and, in addition to items quite common at other ancient sites, they include a series of specimens of a unique nature that have been found nowhere else in such a combination.

Metal being subject to corrosion, a great number of the objects found during the excavation had deteriorated to such an extent that it was difficult, if not altogether impossible to identify their original shape, to say nothing of their intended function(s).

The collection presented here includes objects made of various metals – iron, bronze, lead, and silver. Undoubtedly the individual characteristics of metals were well known to the artisans of the time, and so determined the selection of a particular metal for a particular object. For that reason the arrangement of the catalogue that follows is based on the type of material and not on the shape of the objects, and thus comprises four sections: lead objects, bronze objects, iron objects, and silver objects. All the finds are numbered consecutively in one single sequence. It will be noted that no objects made of gold or electrum were found during the excavations, which, in my view is further evidence of the poor material circumstances of the settlement's inhabitants – though if they had actually possessed any small trinkets made of precious metals, it is more than likely that precisely those objects would have been the first to be removed by those fleeing before impending danger.

Mapping of the metal finds on the excavation plan reveals at least one extremely odd feature, which is that the metal objects are not distributed uniformly within the building. Indeed, in the majority of rooms no metal objects or their remains were found at all: there was no metal in the rooms of the north-eastern range, with the exception of *rooms 2 and 3*; and the same was true of *rooms 7 to 10* in the north-western range. However, certain rooms in the south-west and south-east ranges of the building contained numerous metal objects. First in order of the number of finds were *room 12* (the sanctuary) and *room 13* adjoining it, then came *rooms 21-25, 27, 29, and 30*; though in this part of the building too there were also many *rooms* (nos. *15-18, 19, 20, 26, 28*) where no metal objects were found. In the courtyard most of the objects of this type were found in the squares lying alongside the rooms of the south-west range, in the central area and especially in square V-4. On the other hand, no metal was found in squares B-2, G-2, V-3, G-3, B-4, G-4, Zh-4, and B-5.

The metal objects found in squares of the fifth and sixth grid-rows were possibly thrown there during the attack or shortly afterwards when the building was plundered.

One further observation concerning the distribution of finds within the confines of U6 is that no areas with a concentration of a single metal were discovered – in every case iron objects were found together with bronze ones. Moreover, no zones could be singled out where metal objects connected with one particular activity were grouped together.

In my opinion, such a state of disorder among the finds is additional evidence of a total pillage of the building.

LEAD OBJECTS (K 1-18)

Lead is a metal with a low melting-point; therefore it was possible to cast lead objects in simple domestic conditions using an ordinary hearth or even a bonfire. Although no moulds were discovered during the excavation, the lead pot-repair clamps that have been found are evidence that such a form of metalworking was indeed practised. It is, after all, hardly possible that such work was done anywhere other than on the spot, or that the settlement inhabitants bought vessels that had already been mended.

A relatively small number of objects made of this soft metal were found during the excavation. Undoubtedly, their quantity must originally have been much greater, but during the attack and ensuing fire many of the objects naturally melted and were found in the form of shapeless ingots.

Owing to its softness, the metal was not of course a suitable material for making tools, and therefore lead was utilised on only a very limited scale.

K 1. U6 courtyard, V-4. Find list 1/72. 1973. Pl. 161.

Cone-shaped spindle-whorl. Height 1.6 cm; base diameter 2.3 cm; diameter of the central hole for fixing on the spindle axis 0.4 cm.

K 2. U6 courtyard, D-5. 1974. Pl. 161.

Ring evidently cast in an open mould. Diameter 6.0 cm; inner diameter 3.7 cm.

K 3. U6 well, no. 262. 1974. Pl. 167.

Ring of asymmetrical shape. One half is thicker than the other. Diameter 6.6 cm; inner diameter 5 cm.

Rings of similar shape but of cast iron are known from sites dating to before Hellenistic times.¹ Such rings were also found during excavation of U6 (*cf.* **K 172-173**).

K 4. U6 room 33. Find list 4/12. 1973. Pl. 167.

Flat weight, almost square with rounded sides, cut off at one side. Length 5 cm; width 5.2-5.6 cm; thickness 1.6 cm. Weight 444.61 g.

Similar weights are very common at ancient sites in the northern Black Sea area.²

K 5. U6 courtyard, D-4. 1974. Pl. 161.

Fragments of a thin plate bent double. Probably a billet for some other object. Length 2 cm; width 1.4-1.7 cm; thickness 0.2 cm.

K 6. U6 courtyard, E-4. 1973. Pl. 161.

Fragment of a flat lead plate. Both surfaces are smooth and even. The object is cut off at one end; probably a billet. Length 7-8.5 cm; width 3.9-4.5 cm; thickness 0.3 cm.

K 7. U6 courtyard. Pls. 161 and 167.

Double-sided clamp with a pair of connecting legs. Judging by its dimensions it was used for mending a large ceramic vessel. Length of the upper clamp-plate 9.4 cm; width 1.2 cm; length of the lower clamp-rod 11.3 cm; width 2.2 cm; semi-cylindrical in shape.

K 8. U6 courtyard, E-3. 1974. Pl. 161.

Double-sided clamp with a pair of connecting legs. Length of the upper clamp-rod 5.4 cm; width 0.8 cm. Length of the lower clamp-rod 4.8 cm; width 0.7 cm. Both legs are cylindrical.

K 9. U6 courtyard, V-4. Find list 1/79. 1973.

Fragment of a clamp (single plate with part of one leg). Length 2.9 cm; width 1.4 cm.

K 10. U6 courtyard, V-4. Find list 1/79. 1973.

Fragment of a large clamp. Flat plate with part of one leg. Length 4.1 cm; width 3.1 cm; thickness of plate 0.7 cm.

K 11. U6 courtyard, V-2. 1971. Pl. 161.

Fragment of a semi-cylindrical clamp. Length 4.9 cm; width 0.9 cm; thickness 0.4 cm. Found in a layer of pottery breakdown.

K 12. U6 well, no. 262. 1974. Pl. 167.

Fragment of bent clamp-plate with two legs. Length 5.4 cm; width 0.7 cm; length of the legs 1 cm.

K 13. U6 courtyard, D-2, 3. 1973. Pl. 161.

Plate with the edges on two sides bent inwards, probably a billet. Length 4.2 cm; width 2.3 cm; thickness 0.3 cm.

K 14. U6 courtyard, E-6. Find list 17/127. 1972. Pl. 167.

Ingot of molten lead.

K 15. U6 courtyard, D-6. Find list 17. 1972.

Ingot of molten lead. The bottom surface took on the imprint of some straw during solidification.

K 16. U6 courtyard, G-5. Find list 1/79. 1973.

Ingot of molten lead.

K 17. U6 courtyard, D-6. Find list 17. 1972.

Ingot of molten lead.

K 18. U6 courtyard, D-6. Find list 17. 1972.

Ingot of molten lead.

BRONZE OBJECTS (K 19-95)

Objects made of bronze played an important role in the life of the settlement's inhabitants. Both objects necessary to the routines of daily life and work and miscellaneous personal ornaments – rings, earrings, bracelets, *etc.* – were manufactured of this metal.

Naturally the state of preservation of the objects is not uniformly equal: some have survived only in fragments, while others have been badly corroded; therefore it is not possible to identify unambiguously the purpose, which a number of the specimens served.

NAILS

Nails are the best represented of the various objects in our collection; in terms of their size and the shape of their heads they may be divided into three distinct types. All three types find numerous parallels both at sites in the northern Black Sea area³ and at sites in Greece proper.⁴ Moreover, it should be noted that Olynthian nails and most of those in our collection are such close parallels that the possibility of their having been made in the same workshop cannot be ignored.

Type 1 nails are 15-16 cm long with circular shafts and hemispherical heads. Judging from the way their shafts are bent, these nails were used for fastening beams or thick boards; all the evidence indeed points to their being carpenter's spikes.

What is interesting, however, is that no such spikes were found within any of the rooms, not even in the corner ones. From this it must follow that they were not used for fastening the supporting structures of the building – for instance, ceiling beams. The ceiling beams must therefore have been fixed by some other means, without the use of either bronze or even iron nails. All nails of this first type, identified as carpenter's spikes were found in the courtyard, and therefore were obviously employed in the construction of certain wooden buildings put up in that area.

K 19. U6 courtyard, D-2. 1974. Pl. 161.

Nail with a circular shaft and slightly flattened hemispherical head. Length 16.0 cm; diameter of head 2.0 cm; shaft diameter 0.4-0.7 cm. The shaft is bent at an angle of 90 degrees. Probably used for fastening a timber.

K 20. U6 courtyard, D-2. 1974. Pl. 167.

Nail with a circular shaft and a slightly flattened hemispherical head. Length 14.5 cm; diameter of head 1.8 cm; shaft diameter 0.5-0.8 cm. Bent at an obtuse angle.

K 21. U6 room 3. Find list 6/49. 1971.

Nail with a flattened hemispherical head and circular shaft. Length 12 cm; diameter of head 1.8 cm. Bent.

K 22. U6 room 3. Find list 6/50. 1971. Pl. 167.

Nail with a circular shaft and hemispherical head. Length 12 cm; diameter of head 1.8 cm.

K 23. U6 room 3. Find list 6/49. 1971.

Nail with a flattened hemispherical head and circular shaft. Preserved length 4.8 cm; diameter of head 1.4 cm. The shaft is broken off but clearly originally bent at a right angle.

K 24. U6 courtyard, D-2. 1973. Pls. 161 and 167.

Nail with a circular shaft and a flattened hemispherical head. Length 6.7 cm; diameter of head 1.8 cm; shaft diameter 0.3-0.7 cm. The tip of the shaft is pointed.

K 25. U6 courtyard, E-3. 1973. Pl. 161.

Fragment of a nail-shaft. The head and the end of the shaft are missing. Length 3.7 cm; diameter 0.7 cm.

K 26. U6 courtyard, BV-6. 1974. Pls. 161 and 167.

Fragment of a circular nail-shaft. The head and the end of the shaft are missing. Length 3.6 cm; diameter 0.7 cm.

K 27. U6 courtyard, D-6. Find list 17/122. 1972. Pl. 161.

Fragment of a nail with a circular shaft and hemispherical head. The edge of the head is thin and drawn downwards. The tip has not been preserved. Length 5.8 cm; diameter of head 1.8 cm; diameter of shaft 0.7 cm.

K 28. U6 courtyard, D-3. 1974. Pl. 161.

Fragment of nail with a hemispherical flattened head and a circular shaft. Broken. Length 4.2 cm; diameter of head 2.0 cm; shaft diameter 0.6 cm.

K 29. U6 courtyard, D-3. 1974. Pl. 161.

Fragment of a nail with a hemispherical head and a circular shaft. Length 4.3 cm; diameter of head 1.2 cm; shaft diameter 0.5 cm.

K 30. U6 courtyard, V-4. Find list 1/65. 1973. Pl. 161.

Fragment of a nail with a hemispherical head and circular shaft. The tip is broken off. Length 3.5 cm; diameter of head 1.4 cm; shaft diameter 0.5 cm.

K 31. U6 courtyard, V-4. Find list 1/64. 1973. Pls. 161 and 167.

Fragment of a nail with a hemispherical flattened head and a circular shaft. Length 3.5 cm; diameter of head 1.6 cm; shaft diameter 0.6 cm.

K 32. U6 courtyard, Zh-3. 1973.

Fragment of a nail with a hemispherical head and circular

shaft. The head is swaged round the edge so that it forms a skirting. The nail is broken. Preserved length 2.9 cm; diameter of head 1.7 cm; shaft diameter 0.6 cm.

K 33. U6 courtyard, V-4. Find list 1/65. 1973. Pl. 167.

Nail with a flattened hemispherical head and circular shaft. The nail is broken. Length preserved 4.3 cm; diameter of head 2.1 cm; shaft diameter 0.5 cm.

Nails of the second type are short (length up to 3.5 cm) and thin with a small flat head; the shafts of some of these nails are not circular but forged square in section. It is highly possible that nails of this variety were used in joinery rather than carpentry.⁵ One of the specimens (**K 34**) was found in the doorway of *room 22*, which probably indicates that such nails were used in the making of doors.

K 34. U6 room 22. Find list 6/24. 1972. Pl. 161.

Nail with a tiny flat head. The shaft is square in section with a slight thickening directly below the head. Length 3.5 cm; diameter of head 0.9 cm; cross-section of shaft is 0.4 x 0.4 cm.

K 35. U6 courtyard, V-4. Find list 1/65. 1973.

Fragment of a circular nail-shaft. The head is missing. Length 2.9 cm; diameter of shaft 0.3 cm.

K 36. U6 courtyard, Zh-3. 1974. Pl. 161.

Fragment of a nail-shaft of square section (0.2 x 0.2 cm). The upper part including the head is broken off. Length preserved 2.3 cm.

K 37. U6 courtyard, V-6. 1974. Pl. 161.

Fragment of a nail-shaft of square section (0.4 x 0.4 cm). The head is broken off. Length 3.7 cm.

K 38. U6 courtyard, V-6. 1974.

Fragment of a nail-shaft of square section (0.2 x 0.2 cm). Length 3.7 cm.

K 39. U6 room 29. 1972. Pl. 161.

Fragment of a nail-shaft of square section (0.4 x 0.4 cm). The upper part including the head is broken off. Length 3.1 cm. The nail is bent and twisted. Found inside a black-glazed kantharos. B 24

Nails of the third type are characterised by a flat or slightly convex head and a rather short, thin, and sharply tapered shaft. This type includes two varieties of nails: A (**K 40-44**) and B (**K 45-47**), which differ in length of shaft and size of head. Both varieties most likely served for fastening plaques onto a wooden or other kind frame, *i.e.* they were used in joinery. Both variants are very similar to nails found in Olynthos.⁶

K 40. U6 courtyard, E-3. 1974. Pl. 162.

Nail with a broad flat head and circular, sharply pointed shaft. Length 2.9 cm; diameter of head 1.7 cm; shaft diameter just below the head 0.3 cm.

K 41. U6 courtyard, E-3. 1974. Pl. 167.

Nail with a broad flat head and circular shaft. Length 2.9 cm; diameter of head 1.7 cm; shaft diameter just below the head 0.3 cm.

K 42. U6 courtyard, G-6. 1974. Pl. 167.

Nail with a flat head and circular shaft. Length 2.0 cm; diameter of head 1.0 cm; shaft diameter just below the head 0.2 cm.

K 43. U6 courtyard. Pl. 167.

Tiny nail with a broad flat head and circular shaft. Length 1.8 cm; diameter of head 1.3 cm; shaft diameter near head 0.3 cm. The shaft is slightly bent.

K 44. U6 courtyard. Pl. 167.

Tiny nail with a broad flat head and circular shaft. Length 1.9 cm; diameter of head 1.1 cm; shaft diameter near head 0.15 cm. Bent.

K 45. U6 courtyard, Zh-3. 1973. Pl. 162.

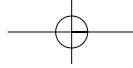
Tiny nail with a broad flat head and short sharply pointed shaft of square section. Length 1.1 cm; diameter of head 1.8 cm; cross-section of shaft 0.4 x 0.4 cm.

K 46. U6 courtyard, Zh-3. 1973. Pls. 162 and 167.

Fragment of a tiny nail with a broad flat head and circular shaft. Length 0.8 cm; diameter of head 1.4 cm; shaft diameter 0.3 cm. Broken.

K 47. U6 courtyard, B-6. 1974. Pl. 162.

Tiny nail with a slightly flattened hemispherical head; the shaft is short and sharply pointed. Length 1.9 cm; diameter of head 1.8 cm; shaft diameter 0.3 cm.



IMPLEMENTS CONNECTED WITH HOUSEHOLD ACTIVITIES: A NEEDLE, BODKINS, A PUNCH

Our collection of bronzes includes a few miscellaneous small implements connected with everyday household activities.

Sewing needles were in use throughout the ancient period; the outward appearance and manufacturing technique are same in all areas.⁷

K 48. U6 courtyard. 1974. Pl. 162.

Sewing needle. Made from a short length of bronze wire 0.1-0.3 cm in diameter. One end is pointed, the other slightly flattened, with an eye for the thread. Length 6.7 cm. Restored from three separate fragments.

K 49. U6 courtyard, G-6. 1974. Pl. 162.

Unidentifiable implement. Bronze shaft of heptahedral section. One end is rounded, the other broken off. Length 3.6 cm; diameter 0.6 cm. Probably this object was a punch, the

pointed end of which is not preserved.

K 50. U6 courtyard, V-4. Find list 1/65. 1973. Pl. 162.

Fragment of a bodkin of square section (0.3 x 0.3 cm). Length 3.1 cm.

K 51. U6 room 23. Find list 7/80. 1972. Pl. 162.

Fragment of a bodkin or awl. One end is pointed, the other broken off. Length 2.9 cm; diameter 0.15-0.30 cm.

PERSONAL ORNAMENTS

The rather wide use of bronze for manufacturing miscellaneous small ornaments can probably be explained, first, by the relative cheapness of this metal and, secondly, perhaps by the fact that it eventually acquires a beautiful dark patina. Plain earrings (fashioned from a loop or loop and a half of bronze wire), pendants, finger-rings, seals, and bracelets were much in demand, being especially popular among citizens of moderate means. Such ornaments not only sold well in cities and villages alike, but were also successfully exported to the barbarians of the steppe regions. Just the same types of bronze ornaments that have been found in Greek cities are reported from sites in the steppe zone of the northern Black Sea area.⁸

Pin, pendants, earrings

K 52. U6 room 12. Find list 6/11. 1971. Pl. 162.

Pin. Made from a length of thick circular wire 0.2-0.4 cm in diameter. One end is thickened, the other broken off. Length 8.9 cm. Nail-shaped variety of pin, type 5, variant 2 (Petrenko 1978, pl. 4, 5).

K 53. U6 room 22. Find list 6. 1972. Pl. 162.

Pendant. Made from a length of circular wire coiled into one and a half loops. Thickness of wire 0.3-0.4 cm. One end is thinner than the other. Loop diameter 2.3 cm. Type 23 (Petrenko 1978, pl. 27, 7; Robinson 1941, pl. XVIII, nos. 317, 318).

K 54. U6 room 2. Find list 3. 1969. Pl. 162.

Pendant made from a length of thick wire coiled into one and a half loops. Thickness of wire 0.3 cm. One end is thinner than the other. Loop diameter 2.1 cm. Same type as **K 53**.

K 55. U6 courtyard, D-4. 1974. Pl. 162.

Pendant made from a length of flat wire coiled into one and half loops. Thickness of wire 0.15 cm. One end is thinner than the other. Loop diameter 2.0 cm. Same type as **K 53**.

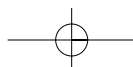
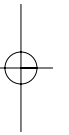
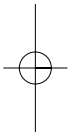
K 56. U6 room 22. Find list 6. 1972. Pl. 162.

Fragment of a pendant. Made from a length of thick wire 0.3 cm in diameter. The ends are broken off; therefore its type can only be conjectured. Perhaps it matched **K 53**. Loop diameter 2.3 cm.

All the pendants listed are of a type of earring-pendant that was very common in the ancient period throughout the northern Black Sea area. They are all of a single type, though made from wire of different thicknesses and profile. The pendants are rather heavy and must have been suspended by means of a small thin ring or 'shackle' fixed directly into the pierced ear lobe.

K 57. U6 courtyard, E-6. Find list 17/117. 1972. Pl. 162.

Miniature earring. A loop of thin circular wire whose ends



do not meet in a full circle. Diameter of wire 0.10-0.15 cm; loop diameter 1.0 cm. This item belongs to type 22, variant 2 (Petrenko 1978). It is highly probable that pendants in the style of **K 53** (above) were suspended from the ear by means of such miniature rings as this.

K 58. U6 courtyard, E-6. Find list 17/119. 1972.
Fragment of an earring made from thin circular wire 0.10-0.15 cm in diameter. It is not possible to define its type.

K 59. U6 courtyard, E-6. Find list 17. 1972. Pl. 162.

Fragment of earring-pendant made from thin flat wire 0.10-0.15 cm thick (*cf.* Petrenko 1978, type 28).

K 60. U6 courtyard, E-6. 1974. Pl. 162.

Fragment of an earring-pendant made from thin flat wire 0.10-0.15 cm thick (*cf.* Petrenko 1978, type 31).

Rings and seal-rings

The collection from U6 includes a few specimens of bronze finger-rings and seals, a couple of which are complete. Some of them were manufactured with much care, while others are very coarse, consisting of just a length of wire bent into a circle. It is probable that one or two of these objects were not actually ornaments but served some other purpose. Thus the fragments of two bronze tetrahedral rings (**K 61** and **K 62**) are unlikely to have been ornaments, since both are four-sided in section and would therefore seem rather inconvenient for wearing on the finger. Unfortunately, there are no complete specimens of such rings in our collection and therefore it is difficult to determine their exact function.

K 61. U6 room 22. Find list 6/23. 1972. Pl. 162.

Fragment of a ring made from a length of wire of square section (0.3 x 0.3 cm). Diameter 2.5 cm (Petrenko 1978, section I, Wire Rings, type 1).

K 62. U6 room 1. Find list 1/7. 1969. Pl. 162.

Fragment of a finger-ring made from a length of wire of square section (0.3 x 0.3 cm). Diameter 2.1 cm (Petrenko 1978, section I, Wire Rings, type 1).

K 63. U6 courtyard, E-6. Find list 17/116. 1972. Pl. 162.

Fragment of a finger-ring. Only the thin, badly corroded bezel is preserved. The outer surface is smooth. Originally the bezel was oval (1.8 x 1.1 cm). Attachment-points for the band were fixed to the underside of the bezel. For the shape *Cf.* Petrenko 1978, section I, Type 1; Robinson 1941, no. 483, 488.

K 64. U6 courtyard, E-6. Find list 17/118. 1972. Pl. 162.

Fragment of a finger-ring. A band with the points of attachment to the bezel is preserved; the bezel itself is missing. The band is made of circular wire 0.2 cm in diameter. The ends of the band are thickened at the points of attachment to the bezel. Ring diameter 1.5 cm.

K 65. U6 room 13. Find list 8. 1971. Pl. 162.

Cast ring of circular section. Diameter of band 0.20-0.25 cm; ring diameter 1.8 cm.

K 66. U6 courtyard, E-6. Find list 17/15. 1972. Pl. 167.

Finger-ring with a flat round bezel. The bezel is decorated with two concentric grooves and has a hollow 0.8 cm in diameter for a glass insert in the centre. The tie is circular in section. Diameter of bezel 2.2 cm; ring diameter 2.0 cm.

K 67. U6 courtyard, Zh-3. 1974. Pl. 162.

Fragment of the band of a ring made from wire of square section (0.3 x 0.3 cm). Conjectural ring diameter 2.8-3.0 cm.

(*cf.* Petrenko 1978, Bracelets, type 6, variant 1, pl. 49, 70. However, judging by its diameter, our find is a finger-ring rather than a bracelet).

Bracelets

K 68. U6 courtyard, G-5. Find list 16. 1972. Pl. 162.

Fragment of a bracelet made from a length of thin wire of square section (0.2 x 0.2 cm) (*cf.* Petrenko 1978, section II, Lamellate Bracelets).

K 69. U6 courtyard, B-2. 1973. Pl. 162.

Fragment of a bracelet made of a length of rod 0.5 cm in diameter (*cf.* Petrenko 1978, section I, Rod Bracelets).

K 70. U6 courtyard, E-6. 1972. Pl. 162.

Fragmentary bracelet consisting of a length of wire of square section (0.3 x 0.3 cm). The shape is an ellipse about 4.0 cm in diameter. Two-thirds of the entire band are preserved. Found lying on the stone paving of the yard (*cf.* Petrenko 1978, section II, Lamellate Bracelets).

K 71. U6 courtyard. Pl. 162.

Fragment of a bracelet made from a length of thick circular wire 0.3 cm in diameter. Portion of circumference preserved 3.1 cm.

K 72. U6 courtyard. Pl. 162.

Fragment of a bracelet made from a length of thick circular wire 0.3 cm in diameter. Portion of circumference preserved 2.3 cm.

K 73. U6 courtyard. Pl. 162.

Fragment of a bracelet made from a length of thick circular wire 0.4 cm in diameter. Portion of circumference preserved 4.4 cm.

WEAPONS

The bronze weapons consist solely of arrowheads. Their number is not great, the total collection amounting to only fourteen specimens. These are the three-bladed and trihedral (three-sided) arrowheads with a usually very short socket. Such as were common at the time.

By contrast to what is observed in burials, where quiver sets comprising several matching arrowheads are fairly common, our collection contains no sets of arrowheads. It is highly probable that most of the arrowheads did not actually belong to the inhabitants of the settlement. The plans showing the positions of the arrowheads in the excavation area of U6 reveal that eight out of fourteen finds come from outside the rooms of the building – four being found on the outer north-eastern side of the building near the wall or within the fabric of the wall itself; the same number again were recovered from the courtyard. Moreover, all the arrowheads were found with their points directed towards the west, south-west, and south, suggesting that the arrows could only have been shot from the north-east – and so most probably by the assailants during the attack. Only six specimens were found inside rooms; however, we cannot be certain that they actually belonged to the defenders, *i.e.* the inmates of the house.

K 74. U6, square V-0. 1973. Pl. 167.

Arrowhead. Three-bladed type with fairly long socket. The tip of the point is missing. Length 1.3 cm.

K 75. U6, square V-0. 1972. Pl. 162.

Arrowhead. Three-sided type with hollow central core. Length 3.4 cm.

K 76. U6, square D-0. Find list 1. 1972. Pl. 162.

Arrowhead. Three-bladed type with short socket. The blades are separated by grooves. Length 2.9 cm.

K 77. U6, square Z-0. 1972. Pl. 167.

Arrowhead. Three-bladed type with recessed socket. The blades are separated by grooves. Length 2.4 cm.

K 78. U6 courtyard, E-4. 1973. Pl. 167.

Arrowhead. Three-bladed type with recessed socket. The blades are separated by grooves. Length 3 cm.

K 79. U6 courtyard, E-5. 1972. Pl. 162.

Arrowhead. Three-bladed type with socket. The blades are separated by grooves. Length 3.2 cm.

K 80. U6 courtyard, D-6. 1972. Pl. 167.

Arrowhead. Three-sided type with socket; edges are even and smooth. Length 2.8 cm.

K 81. U6 courtyard, E-6. Find list 17. 1972. Pl. 167.

Arrowhead. Three-bladed type with short protruding socket. The blades are separated by grooves. Length 3.7 cm.

K 82. U6 room 3. Find list 6/53. 1969. Pl. 167.

Fragmentary arrowhead. Three-bladed type with short solid tang; the blades are separated by grooves. The tip of the point is missing. Length 2.2 cm.

K 83. U6 room 31. 1973. Pl. 167.

Three-sided arrowhead with recessed socket. The tip of the point is bent. Length 2.1 cm.

K 84. U6 room 30. Find list 14. 1972.

Three-bladed arrowhead with short head and protruding socket. Partly disintegrated, restored. Length 2.8 cm.

K 85. U6 room 10. Find list 4. 1971. Pl. 167.

Three-bladed arrowhead with a pronounced socket. The blades are sharp and of different lengths. Length of the arrowhead 2.4 cm.

K 86. U6 room 18. Find list 1. 1972. Pl. 162.

Three-sided arrowhead with hollow central core. Length 2.2 cm.

K 87. U6 room 30. Find list 14. 1972. Pl. 167.

Fragment of an arrowhead. Three-bladed type. The tip of the point and the end of the protruding socket are broken off. Length 1.2 cm.

MISCELLANEOUS

K 88. U6 room 12. Find list 6. 1971. Pl. 162.

Buckle. Made from a thin narrow strip (0.4 cm x 0.2 cm) bent to form a rectangle (though the ends do not actually meet). Length 2.2 cm; width 0.9 cm. Probably intended for a belt to be threaded through and thus secured.

K 89. U6 room 12. Find list 6. 1971.

Small fragments of a buckle similar to the preceding.

K 90. U6 room 12. Find list 6/67. 1971. Pl. 162.

Fragmentary buckle. Made from thin narrow strip (0.5 cm x 0.2 cm) bent to form a rectangle. Only half preserved. Length 3.1 cm. Probably intended for a belt to be threaded through and thus secured.

K 91. U6 room 12. Find list 6/67. 1971. Pl. 162.

Two fragmentary buckles welded together, both of the same

type as **K 88** and made from thin narrow strips (0.3-0.4 cm x 0.2 cm). Length 2.7 cm; width 1.1 cm.

K 92. U6 courtyard, E-6. Find list 17/120. 1972. Pl. 163.

Flat strip 0.2 cm thick. Length 3.8 cm; width 2.0 cm. The edges are ragged. The strip is slightly bent. The purpose is unknown.

K 93. U6 room 29. Find list 13. 1972.

Flat strip 0.2 cm thick. Length 6 cm; width 2.5-3.5 cm. One edge is cleanly cut. The purpose is unknown.

K 94. U6 room 29. Find list 13. 1972.

Flat strip 0.2 cm thick. Maximum dimensions: length 3.0 cm; width 2.5 cm. The edges are ragged. The purpose is unknown.

K 95. U6 courtyard, E-2. 1973. Pl. 162.

Tiny cast figurine of a dolphin. The tail is missing. The eyes are represented by incised points on both sides of the head; the fins are not indicated. Length 2.2 cm; height 1.2 cm.

IRON OBJECTS (K 96-183)

Finds of iron objects were very common in the excavation of building U6. However, they were less completely preserved than objects of lead or bronze, almost all of them being much corroded, and, in some instances, too badly so to survive cleaning; thus the original shape could be reconstructed only with the greatest difficulties. Nevertheless, this section of the catalogue includes all the iron artefacts actually found.

Iron naturally surpasses bronze in its working qualities, and for that reason implements of importance were made of iron. At present it remains impossible to determine reliably where the settlement's inhabitants acquired such iron household utensils as they needed. We do not know whether there was a small specialised workshop within the settlement itself – some kind of forge or smithy – or whether iron objects had to be purchased in the markets of large urban centres, *e.g.* Olbia or Chersonesos, or from travelling merchants. In fact a combination of all three sources is highly probable.

However they were actually obtained, we must not overlook the high degree of standardisation among our iron objects, nor, indeed, the great number of very close parallels found at various other sites in the Black Sea area. These factors naturally suggest the existence of certain common standards for such objects.

NAILS

The largest part of our collection of iron objects consists of complete or fragmentary nails. Like bronze nails the iron ones may be divided into at least three distinct types. However, the peculiarity of our iron nails is that they were evidently used exclusively for carpentry *i.e.* for structural purposes; thus no small-sized iron nails whatsoever have been found within the building area.

The first type includes large nails 8 to 14 cm long. They have a hemispherical head and a forged shaft of square section. Owing to corrosion it is almost always impossible to determine the original thickness of the shafts; therefore all parameters given in the catalogue are related to the present state of the artefacts.

K 96. U6 courtyard, E-6. Find list 17/124. 1972. Pl. 163.

Nail with hemispherical head and square-section forged shaft (0.6-1.2 cm thick). Length 10.6 cm; diameter of head 2.1 cm. Bent at an angle of 90 degrees. Like the large (type 1) bronze nails this was probably used for fastening structural timbers.

K 97. U6 courtyard, E-5. 1974. Pl. 163.

Nail with hemispherical head and square-section forged shaft (0.7-1.5 cm thick). Length 11.2 cm; diameter of head 3.2 cm. The end of the nail is bent.

K 98. U6 courtyard, E-2. 1974. Pl. 163.

Nail with hemispherical head and square-section shaft (0.6-1.1 cm thick). Length 9.2 cm; diameter of head 2.4 cm. The end is bent.

K 99. U6 courtyard, V-4. Find list 1/70-71. 1973. Pl. 163.

Fragment of forged square-section nail-shaft (0.6-1.0 cm thick). The head is missing. Length 10.7 cm.

K 100. U6 courtyard, V-4. Find list 1/71. 1973. Pl. 163.

Fragment of forged square-section nail-shaft (0.6 cm thick). The head is missing. Length 9.8 cm.

K 101. U6 courtyard, V-4. Find list 1/70-71. 1973. Pl. 163.

Fragment of forged square-section nail-shaft (0.8 cm thick). The head is missing. Length 13.8 cm. The shaft is bent at an angle of 90 degrees, and is further bent at the tip.

K 102. U6 courtyard, B-6. Find list 16/123. 1972. Pl. 163.

Fragmentary nail with hemispherical head and square-section forged shaft (0.9-1.1 cm thick). End broken off. Length 7.7 cm; diameter of head 1.8 cm.

K 103. U6 courtyard, V-4. Find list 1/70-71. 1974. Pl. 163.

Nail with hemispherical head and square-section forged shaft (0.5-0.9 cm thick). Length 6.3 cm; diameter of head 2.0 cm.

K 104. U6 courtyard, V-2. 1973. Pl. 163.

Fragmentary nail with hemispherical head and square-section forged shaft (1.2 cm thick). End broken off. Length 6 cm; diameter of head 2.1 cm.

K 105. U6 courtyard. 1972. Pl. 163.

Fragmentary nail with hemispherical head and square-section forged shaft. End broken off. Length 5.7 cm; diameter of head 2.8 cm.

K 106. U6 courtyard, E-3. Pls. 163 and 167.

Fragmentary nail with hemispherical head and forged square-section shaft. End broken off. Length 6.4 cm; diameter of head 2.4 cm.

K 107. U6 courtyard, D-2. 1972. Pl. 163.

Fragmentary nail with hemispherical head and square-section forged shaft. Length 3.2 cm; diameter of head 1.8 cm.

K 108. U6 courtyard, D-2. 1972. Pl. 163.

Fragmentary nail with hemispherical head and circular forged shaft. End broken off. Length 3.0 cm; diameter of head 2.0 cm.

K 109. U6 courtyard, V-4. Find list 1/66-69. 1973. Pl. 163.

Fragment of a nail with hemispherical head and circular forged shaft (diam. 1.3 cm). End broken off. Length 4.0 cm; diameter of head 1.5 cm.

K 110. U6 courtyard, D-2. 1974. Pl. 163.

Fragment of a nail with hemispherical head and square-section forged shaft. Length 3.2 cm; diameter of head 1.7 cm.

K 111. U6 courtyard, D-6. Find list 17. 1972. Pl. 163.

Fragmentary nail with hemispherical head and circular forged shaft (diam. 1.3 cm). The shaft is short and tapering. Length 4.0 cm; diameter of head 2.0 cm. Possibly, this is a shorter variety of our type 1 nail.

K 112. U6 courtyard, D-5. 1973. Pl. 163.

Fragmentary nail with hemispherical head and circular forged shaft (diam. 1.0 cm). End broken off. Length 2.8 cm; diameter of head 1.8 cm.

K 113. U6 courtyard, V-2. 1971.

Fragmentary nail with hemispherical head and circular forged shaft (diam. 1.3 cm). End broken off. Length 4.0 cm; diameter of head 2.2 cm.

Iron nails of the second type are up to 5.0 cm long with flat or flattened hemispherical heads. The shafts of these nails are thinner than those of the type-1 iron nail. The number of type-2 nails found is very small; they perhaps served for fastening together thin boards.

K 114. U6 courtyard, B-5. 1973. Pl. 163.

Fragmentary nail with broad flat head and thin circular shaft (diam. 0.3-0.9 cm). The pointed end is broken off. Length 3.5 cm; diameter of head 1.8 cm.

K 115. U6 room 13. Find list 8/60. 1972. Pl. 164.

Nail with small flat head and circular shaft (diam. 0.4-0.8 cm). Length 4.5 cm; diameter of head 1.0 cm.

K 116. U6 room 24. Find list 8/18. 1972. Pl. 164.

Fragmentary nail with small flat head and forged square-section shaft (0.5 cm thick). Corrosion has partly destroyed the head. Length 4.2 cm; diameter of head 0.9 cm.

Only two specimens of the type-3 iron nail were found. These are heavy nails with a flat, very broad head and circular shaft. Like a couple of the type-2 nails, the type-3 ones were found inside one of the rooms rather than in the courtyard; hence they were probably only used for finishing interior parts of the building.

K 117. U6 room 13. Find list 8/61. 1971. Pl. 164.

Nail with a heavy flat head and circular shaft (diam. 0.6-1.4 cm). Length 3.9 cm; diameter of head 5.2 cm.

K 118. U6 room 13. Find list 8/61. 1971. Pl. 164.

Nail with a heavy, broad, flat head and a circular shaft (diam. 0.6-1.4 cm). Length 7.3 cm; diameter of head 4.8 cm.

It was impossible to assign quite a number of very poorly preserved nail fragments to any of the three types described above; for that reason they are catalogued in the following section without a type attribution.

K 119. U6 room 12. Find list 6/73. 1971. Pl. 164.

Fragment of square-section shaft of a forged nail. Length 10.5 cm. The fragment is bent at right angle, and further bent at its pointed tip.

K 130. U6 courtyard, V-5. 1973. Pl. 164.

Fragment of square-section shaft of a forged nail (0.9 cm thick). Length 5.7 cm.

K 120. U6 room 14. Find list 7. 1971. Pl. 164.

Fragment of circular nail-shaft (diam. 0.6 cm). Length 6.7 cm.

K 131. U6 courtyard, V-4. Find list 1/66-69. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.7 x 0.7 cm). Length 3.4 cm. Bent.

K 121. U6 courtyard, V-4. Find list 1/66-69. 1973. Pl. 164.

Fragment of square in section shaft of a nail (0.8 cm thick). Length 6.5 cm. The lower end is bent at an angle of 100 degrees.

K 132. U6 courtyard, V-2. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.7 cm thick). Length 2.5 cm.

K 122. U6 courtyard, V-4. Find list 1/66-69. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (1.0 x 1.0 cm). Length 6.3 cm.

K 133. U6 courtyard, V-2. 1973. Pl. 164.

Fragment of circular shaft of a nail (diam. 0.9 cm). Length 2.3 cm.

K 123. U6 courtyard, G-5. Find list 16. 1972. Pl. 164.

Fragment of circular shaft of a nail (diam. 0.8 cm). Length 6.8 cm. Bent at right angle.

K 134. U6 courtyard, V-2. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.8 x 0.6 cm). Length 3.5 cm

K 124. U6 room 25. Find list 9. 1972. Pl. 164.

Fragment of square-section shaft of forged nail (0.7 x 0.7 cm). Length 5.6 cm.

K 135. U6 courtyard, V-2. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.6 x 0.9 cm). Length 2.8 cm.

K 125. U6 room 25. Find list 9. 1972. Pl. 164.

Fragment of square-section shaft of a nail (0.7 x 0.7 cm). Length 6.1 cm. Bent.

K 136. U6 courtyard, V-2. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.6 x 0.6 cm). Length 3.2 cm.

K 126. U6 room 12. Find list 6/73. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.8 x 0.8 cm). Length preserved 5.2 cm.

K 137. U6 courtyard, V-2. 1973. Pl. 164.

Fragment of square-section shaft of forged nail (0.8 x 0.8 cm). Length 2.8 cm.

K 127. U6 courtyard, D-6. Find list 17. 1972. Pl. 164.

Fragment of square-shaft of forged nail. Length 2.5 cm.

K 138. U6 courtyard, V-2. 1973.

Fragment of square-section shaft of forged nail (0.6 x 0.6 cm). Length 3.3 cm.

K 128. U6 courtyard, V-4. 1973. Pl. 164.

Fragment of square-section shaft of forged nail. Length 2.9 cm.

K 139. U6 room 23. Find list 7/29. 1972.

Fragment of an iron object, possibly a nail. So badly corroded that the original shape is impossible to determine. Diameter 1.8-2.0 cm; length 4.8 cm.

K 129. U6 room 23. Find list 7/29. 1972. Pl. 164.

Fragment of circular shaft of a nail (diam. 0.7 cm). Length 3.8 cm.

K 140. U6 room 24. Find list 8/19. 1972.

Fragment of an iron object, possibly a thin nail. Diameter 0.4 cm; length 1.9 cm.

AGRICULTURAL TOOLS

At present several types of sickle are known from excavations of ancient sites in the northern Black Sea area. The archaic sickles from the Lower Bug regions had no clamps or sockets for attaching the blade to the handle; instead, the near end of the blade was simply inserted into the handle,⁹ the sickle of the early Hellenistic period from the settlement of Kozyrka XII was slightly more sophisticated in that it had a tang for insertion into the handle. The closest parallel to our sickles is a fragment of a sickle with an open handle clamp from the settlement of Kholm A near Kimmerikon.¹⁰ Sickles of later periods are somewhat different in shape from those found during excavation of U6.¹¹

K 141. U6 room 3. Find list 6/48. 1969. Pl. 168.

Sickle. The curved blade up to 3.0 cm wide tapers smoothly to the tip and the heel is fashioned to form an open clamp-like socket into which a wooden handle was inserted secured by means of iron rivets. Length along the back together with the handle 42.0 cm. Length of the blade 29.0-30.0 cm; length of the clamp-socket 7.0 cm. The piece is to be classed as an asymmetrical sickle. First published by A.N. Ščeglov.¹²

K 142. U6. Pl. 168.

Fragmentary sickle with its slightly curved blade complete. The handle is missing. Length along back of sickle 17.0 cm. The blade is 1.8 cm wide, and tapers smoothly towards the tip.

K 143. U6 room 3. Find list 6/43-44. 1969. Pl. 168.

Two fragments of a sickle; the middle section of the blade is missing. The blade is slightly curved; it is 2.6 cm wide and tapers smoothly towards the tip. Like **K 141** the heel was furnished with a clamp-socket for the insertion of a wooden handle. Length of the clamp 6.0 cm.

K 144. U6.

Fragment of a sickle. A section of the blade with an open

clamp-socket for the handle is preserved. Length 17.0 cm; blade width 3.0 cm. First published by A.N. Ščeglov.¹³

K 145. U6 room 12. Find list 6/72. 1971. Pl. 165.

Fragment of a sickle blade. The handle and most of the sharply curved blade are missing. It is impossible to determine the original dimensions. The back or outer edge is 0.5 cm thick, while the cutting edge is thin and sharp. Length preserved 14.0 cm; blade width 2.2 cm.

K 146. U6 room 11. Find list 5/14. 1971. Pl. 165.

Fragment of a falx (or cutting hook) with slightly curved blade. The thickness of the back or outer edge is up to 0.8 cm; however, the cutting edge is incompletely preserved because of corrosion. The blade now is 2.0 cm wide, but was evidently wider originally. Length of the fragment preserved 12.3 cm. The implement may probably have been a scythe.

K 147. U6 courtyard, Zh-3. 1973. Pl. 168.

Plough-share; forged from an iron bar not less than 29.0 cm long and 5.0 to 8.0 cm wide. The operative part is rounded and flattened like a trowel 8.0 cm wide and constituted the cutting blade (or sole) of a heavy primitive plough. Published by A.N. Ščeglov.¹⁴

Quite a number of pruning knives, often also called vine-dresser's knives, have been found in the Black Sea area;¹⁵ these knives, however, differ from the single specimen in our collection in having wider and more sharply curved blades.¹⁶ Nevertheless, in view of its general proportions and the manner in which the wooden handle was secured, our piece should certainly be classed as a knife intended for horticultural purposes.

K 148. U6 courtyard, D-5. 1973. Pl. 168.

Pruning knife with a wide blade and clamp-socket for attachment of a wooden handle. The back of the blade is sharply curved; the cutting edge is straight. Length of the knife 12.0 cm; width of the widest part 3.0 cm; length of the cutting edge, excluding the clamp-socket, 7.5 cm. The clamp makes a single whole with the blade and consists of two semi-cylindrical projections between which the wooden handle was secured.

K 149. U6 room 13. Find list 8/55. 1971. Pl. 168.

Hoe. The blade is forged from an iron sheet 32.8 x 10.5 cm to which is welded a long socket for the insertion of a wooden shaft. Length of the socket 18.0 cm; diameter 3.5 cm; inner diameter 2.0 cm. The working edge of the blade is sharp and rounded, and the shoulders of the blade are equal in size (13.0 cm). No similar implements from excavations of ancient sites in the northern Black Sea area are known to us.

KNIVES

K 150. U6 room 24. Find list 8/20. 1972. Pls. 165 and 169.

Fragments of a large knife. The point of the blade and the tang are missing. The back is slightly curved; the cutting edge of the blade is straight. Thickness of the back 0.6 cm; width of the blade 2.5 cm; length 13.0 cm. Similar blades are known from Olynthos.¹⁷

K 151. U6. Pl. 169.

Fragment of the tang and a part of the blade of a knife. The tang curves slightly downwards; the blade is wider than the tang and both are forged from a single flat bar of metal. Length preserved 14.4 cm; tang width 1.5-1.7 cm; blade width 1.9 cm.¹⁸

K 152. U6 courtyard, D-6. Find list 17/125. 1972. Pls. 165 and 169.

Fragments of a knife. The point of the blade and the tang are missing. The back of the blade is slightly curved; the cutting edge is worn and slightly curved. Length 11.5 cm; blade width 2.2 cm. The transition between the blade and tang is preserved; the tang is thinner than the blade and has two smooth ledge-like projections at the point of transition.

K 153. U6. Pl. 169.

Fragmentary knife with a slightly curved back. The point and part of the tang are missing. At the junction between tang and blade a hole for a rivet is preserved. Length 9.4 cm; blade width 2.0 cm; tang width 1.0 cm. The cutting edge is thin, smooth, and almost straight, though slightly worn.

K 154. U6 room 13. Find list 8/54. 1971. Pl. 169.

Knife with a humped back. The cutting edge is straight and smooth; the blade is separated from the tang by a small ledge-like projection. Length 6.7 cm; blade width 1.6 cm; tang width 1.0 cm.

K 155. U6. Pl. 169.

Knife with a humped back. The cutting edge is straight and slightly worn. The blade is separated from the tang by a small ledge-like projection. Length 10.2 cm; blade width 2.1 cm; tang width 1.3 cm.

K 156. U6. Pl. 169.

Knife with a humped back. The cutting edge is badly worn.

The blade is separated from the tang by a smoothly curving ledge-like projection. Length 9.6 cm; width 1.8 cm; tang width 0.9 cm.

K 157. U6 courtyard, B-6. 1971. Pl. 165.

Fragment of a blade point. The back is slightly curved; the cutting edge is straight. Length 5.2 cm; width 1.9 cm.

K 158. U6 courtyard, B-3. 1971. Pl. 165.

Fragment of a blade point. Length 3.9 cm; blade width 1.5 cm.

K 159. U6 room 29. Find list 13/15. 1972. Pl. 165.

Fragment of tang of a knife with a part of the blade. The tang is separated from the blade by a small ledge-like projection. Length 7.3 cm; blade width 1.8 cm. The tang bears traces of the wooden facings that had formed the handle.

K 160. U6 room 33. Find list 4. 1973. Pl. 165.

Fragment of tang of a knife with a part of the blade. The tang is the same width as the blade. Length 7.2 cm; width 2 cm. Three iron rivets for securing a wooden handle are still attached to the tang.

K 161. U6 room 13. Find list 8/66. 1973. Pls. 165 and 169.

Iron facing of a knife handle. This consists of a thin plate bent in half thus forming a type of sheath or socket into which the tang was inserted; three rivets for securing the tang are still in place. Twelve holes are bored through the facing making two rows – six holes in each row. Length 7.0 cm; width 1.5 cm.

HOOKS

K 162. U6 courtyard, Zh-2. 1973. Pl. 170.

S-shaped hook made from a length of circular rod 1.0-1.5 cm in diameter. One curve of the S is small and forms a small hook bent at an acute angle; the opposite curve is broader and deeper, but also ends in a hook bent at an acute angle. Length 24.0 cm.

K 163. U6. Pl. 165.

Fragmentary hook made from a rod of oval section (mean diameter 1.8 cm). Only part of it, 6.5 cm long, is preserved. The curve of the hook is tight and bent at an acute angle.

S-shaped hooks were of course needed in any house for various practical purposes; however, finds of hooks are not all that common in excavations. Fragments of hooks dated to the first centuries A.D. have been found in Olbia,¹⁹ and we may also note a hook found at Olynthos²⁰ which, however, differs from those from Panskoye I in having one end in the form of a round eye for threading a rope through or for the insertion of a rod. The specimens from U6 were intended to have one end hooked over a fixed support, probably a wooden rod, though we should not rule out the possibility that some of the hooks were suspended from a rope or line.

TOOLS

The set of tools described below (**K 164-169**) is unique in the entire northern Black Sea region and perhaps also the whole Mediterranean. Most of the items are connected with woodworking, a fact that is not surprising when we take account of the wide dissemination of woodworking skills and the demand for good carpenters in the construction of settlements on a large scale in the north-western Crimea in the late 4th and early 3rd centuries B.C. What may surprise us, however, is not only the well-preserved state but also the composition of the set, which includes all the tools needed by a carpenter, from drills to axes.

K 164. U6 courtyard, E-6. Find list 17/126. 1972. Pl. 166.

Iron tool, probably a narrow chisel, made from a bar of rectangular section (0.6 x 0.9 cm). One end is flat and sharp. Length 18 cm.

K 165. U6 room 21. Find list 13/10. 1972. Pl. 166.

Broad chisel, consisting of a bar of rectangular section (0.8 x 2.0 cm). Length 18.2 cm. One end is pointed and slightly bent.

K 166. U6 courtyard, B-6. 1971. Pl. 166.

Chisel, consisting of a blade with rounded corners (0.2-0.3 cm thick). The two edges of the blade are bent towards each other but do not meet. Both ends of the tool may have been the operative parts since both are sharp. Length 8.3 cm; diameter 2.0 cm.

Chisel finds are rare; however, all known parallels are of a similar type to our **K 164-166**. Chisels of this shape come from Grave no. 88 in the necropolis of Zolotoye²¹ and from Olbia.²²

K 167. U6 room 13. Find list 8. 1971. Pl. 169.

Bow-drill, basically consisting of a flat narrow iron bar 0.9 cm wide and 0.6 cm thick. One end is rounded and pierced by a hole 0.3 cm in diameter, and the other end is pointed; while the central section 16.0 cm long, is of circular section and seems to have had a threading for the accommodation of the bow-string necessary for the drilling process. Length of drill 39.0 cm.

K 168. U6 room 13. Find list 8/57. 1971. Pl. 170.

Forged axe. The socket for the insertion of the handle is placed off-centre towards the butt. The top side of the axe curves slightly downwards at the butt, whereas the under side forms a pronounced concave curve, which means that the cutting edge is prolonged up to 4.5 cm. Length 18.8 cm; width 5.0 cm; height 4.3-4.5 cm; diameter of socket 1.8 cm.

K 169. U6 courtyard, D-6. 1973. Pl. 166.

Fragment of the head of an axe. Badly corroded. It is impossible to determine the type. Length preserved 6.7 cm; diameter 3.9 cm.

IRON BUCKLES

Ring-like buckles of both iron and bronze were made in Classical and Hellenistic times and are quite widespread in the steppe zone of the northern Black Sea area. Some scholars consider them to be, specifically, belt buckles²³ and point out that they were used over a wide area from Pannonia to Urals during the entire Scythian period up to the Middle Ages.²⁴ However, there are certain iron rings among the Olynthian material that, although very close to such iron buckles in both shape and size, were obviously not connected with wearing apparel but served some other purpose.²⁵ This assessment looks all the more probable since numerous fragments of several other similar rings (**K 172-173**) were found at U6 near buckle **K 171**. Moreover, the latter buckle itself was agglomerated with one of these fragments, which, judging by what survives, belonged to large rings 10-12 cm in diameter.

K 170. U6 room 13. Find list 8/59. 1971. Pl. 165.

Buckle. Made from a length of rod (0.7 cm thick); the ends of the rod do not actually meet and are bent in opposite directions from each other. Diameter 5.9 cm; inner diameter 4.7 cm.

K 171. U6 courtyard, B-6. 1973. Pl. 166.

Buckle. Made from a length of rod (0.7-0.9 cm thick); the ends of the rod do not actually meet and are bent in oppo-

site directions from each other and flattened at the tips to form a pair of finial knobs. Diameter 6.0 cm; inner diameter 4.4 cm.

K 172. U6 courtyard, B-6. 1971.

Fragment of iron ring or buckle of the same type as **K 171**. Made from a length of rod (0.7-0.9 cm thick). Length 4.2 cm; diameter of ring 5.0 cm.

K 173. U6 courtyard, B-6. 1971. Pl. 166.
Twelve fragments of rings. The fragments are of an equal size; some have agglomerated together. All the fragments

consist of lengths of rod 0.5-0.6 cm in diameter. Judging by the configuration and number of fragments there were originally no fewer than two rings 10-12 cm in diameter.

WEAPONS

K 174. U6 room 12. 1971. Pl. 170.
Iron machaira. The sword has a single-edged slightly curved blade that broadens out midway along its length. The

pointed tip is broken off; the hilt is crumpled and broken; and the cutting edge is chipped and bent. Length 50.0 cm; width of the blade in its widest point 6.0 cm.

Only a few specimens of this type of sword have been found in the northern Black Sea area, most of them fragmentary.²⁶ A fairly complete example comes from a grave near Karantinnoe Highway in Kerch,²⁷ and another, complete, specimen was found in Grave no. 41 in the necropolis of Gorgippia;²⁸ a fragment of the blade of a *machaira* was found at the settlement of Kozyrka II near Olbia.²⁹

K 175. U6 courtyard, E-4. 1973. Pl. 166.
Dart-head. A three-sided head makes up one third of the total length of the dart. It is rhomboid in section and has prominent ribs. The head has a tang for the insertion into the shaft. Length 13.6 cm; length of the head 4.2 cm; width of the blade 2.0 cm; width of tang 0.5-1.0 cm. Darts with tangs for insertion into the shaft are not characteristic of sites in the northern Black Sea area where the prevailing majority of spears and darts have hollow ferrules for the insertion of the shaft. Spears and darts with solid tangs, on the other hand, are common among Greek weapons. Our specimen belongs to type E according to Robinson.³⁰

K 176. U6 room 35. 1973. Pls. 166, 170.
Cone-shaped hollow spear butt-end. Length 7.0 cm; diameter 1.9 cm.

K 177. U6. Pl. 170.
Spear butt-end in the form of a cylindrical pipe with a cone-shaped tip. Length 9.8 cm; diameter 1.4 cm.

K 177a. U6. Pl. 167.
Arrowhead. Three-bladed type with long socket. Length 4.1 cm.

MISCELLANEOUS IRON OBJECTS

K 178. U6 room 3. Find list 6/48. 1969. Pl. 170.
Five-pronged fork. This item is made from a forged bar 32.0 cm long and 1.2 cm in diameter, towards one end of which

four prongs are welded symmetrically to form a five-pointed star-like whole. The length of the prongs is 4-5 cm; two of them are broken off.

No other implements such type have been reported from the northern Black Sea area. D.M. Robinson considered a similar fork, though made of bronze, to be a hook for removing hot meat from a boiling pot, and refers for confirmation both to numerous examples of such utensils represented on vases and to parallels found during excavations and kept in various collections.³¹

K 179. U6 room 12. Find list 6/66. 1971. Pl. 170.
Part of a lock-attachment plate 8.8 x 10.6 cm; a hole for the key is cut through the centre. Most probably the lock was mounted on a chest rather than a door.³²

K 180. U6 room 12. Find list 6/69. 1971. Pl. 170.
Folding clamp that formed part of a locking device. A quite similar clamp, though of a different size, was found in Grave no. 57 in the necropolis of Gorgippia among metal parts of a box.³³

OBJECTS OF UNDEFINED PURPOSE

K 181. U6 well, no. 103. 1974. Pl. 166.

Fragment of a badly corroded object. It is oval in section (2.2 x 1.0 cm). Length 4.6 cm.

K 182. U6 room 29. Find list 13/16-17. 1972. Pl. 166.

Fragment of iron plate 0.3 cm thick. Length 5.4 cm; width 2.5 cm.

K 183. U6 room 13. Find list 8/54. 1971. Pl. 166.

Fragment of an object consisting of three rods all attached to a single base. Diameter of the rods 0.9 cm; length 3.1 cm; width 2.3 cm.

SILVER OBJECTS (K 184-188)

Our collection includes only a few objects made of silver. This is just as we might expect, since silver was an expensive metal and was used only in the manufacture of ceremonial, prestigious, or sacral articles.

K 184. U6 room 13. Find list 8. 1971.

Small finger-ring of circular section. Diameter 1.9 cm; inner diameter 1.2 cm. Disintegrated during cleaning.

K 185. U6 room 27. Find list 11/14. 1972. Pl. 166.

Pendant. Made from a length of circular wire bent to form a loop; the ends are each bent round again. Dimensions 2.5 x 1.4 cm.

K 186. U6 room 12. Find list 6/26. 1971. Pl. 166.

Fragments of two lamination plates (one complete plate and two fragments of a second plate) probably intended as applied decoration for a wooden box. Small nail-shaped projections or pegs are soldered to the back or lower side of the complete plate as a means of attaching it to its base or wooden backing. The plates are thin and smooth and have rounded corners. Length of the complete specimen 4.3 cm; width 1.0 cm; thickness 0.2 cm. Dimensions of the fragments are 1.5 x 0.8 cm and 1.0 x 0.7 cm; both 0.2 cm thick.

K 187. U6 room 12. Find list 6/65. 1971. Pl. 166.

Disintegrated silver plate in three fragments probably for applied decoration of a wooden box. Small nail-shaped pegs are soldered to the back or lower side as a means of at-

tachment. Dimensions preserved: length 6.1 cm; width 2.0 cm. A representation of a human leg modelled in low relief is preserved on the front or upper face. The length of the leg down to the knee-joint is 3.2 cm suggesting that the total height of the figure as originally shown was not less than 10 cm. Plates **K 186** and **K 187** in all likelihood served as applied decorations for a wooden box.

K 188. U6 courtyard, D-5. 1974. Pls. 149 and 167.

Figurine of a coiled snake with upraised head (for particulars see **G 17**). A close parallel was found during excavation of the rural settlement of Andreevka-Yuzhnaya in the eastern Crimea.³⁴

ADDENDA

K 189. U6 room 13. Find list 8. 1971.

Iron rod. Length 85.0 cm. One end is round in section with the diameter of 1.0 cm. The other end is thicker and hammered square in section with an average side of 2.0 cm. The tip is shaped shelf-like and sharpened. The purpose of the object is not quite clear. Most probably it was used in agriculture for planting.

NOTES

1. Robinson 1941, nos. 2626-28, 2632, 2633.
2. For comparisons, see the exhaustive summary of finds of lead weights from Olbia and Cherso-nesos by V.V. Krapivina 1980, 83-98; 1988, 188-194; 1997, 63-65.
3. Krapivina 1993, 133.
4. For variant A, *cf.* Robinson 1941, nos. 1361-1394, pls. XCI-XCII; for variant B, *cf.* Robinson 1941, nos. 1454-1482, pl. XCIV.
5. *Cf.* Cvetajeva 1951, 70; Arsen'jeva 1977, pl. XXXIX; Parovič -Pešikan 1974, 138; Kozub 1974, 144, fig. 59; Skudnova 1988, 24. *etc.*
6. *Cf.* Petrenko 1978.
7. *Cf.* Kryžyckij *et al.* 1989, figs. 28, 1, 3, 5-8.
8. Kruglikova 1975, fig. 80; for particulars *cf.* Ščeglov 1978, 108.
9. *Cf.* Kryžyckij *et al.* 1989, figs. 28, 1, 3, 5-8.
10. Kruglikova 1975, fig. 80; for particulars *cf.* Ščeglov 1978, 108.
11. *Cf.* Šelov 1972, 77-78; Krapivina 1993, fig. 84; Alekseeva 1997, pls. 116, 10, 250, 5, 6.
12. Ščeglov 1978, fig. 58.
13. Ščeglov 1978, fig. 58.
14. Ščeglov 1978, 107, fig. 57; on plough-share finds in the northern Black Sea area, *cf.* Kruglikova 1975, 163-168.
15. Kruglikova 1975, 178-180, figs. 84-87.
16. Ščeglov 1978, fig. 62.
17. Robinson 1941, nos. 1601, 607.
18. *Cf.* Robinson 1941, no. 1603.
19. Krapivina 1993, figs. 87, 2, 3, 5, 7, 9.
20. Robinson 1941, no. 2645, pl. CLXX.
21. Korpusova 1983, fig. 9, 9.
22. Krapivina 1983, fig. 86, 11.
23. Korpusova 1987, 69, pl. 20, 4.
24. Korpusova 1987, 69, *cf.* also the references.
25. Robinson 1941, pl. CLXIX, 2637.
26. *Cf.* Sokol'skij 1954, 142 ff.
27. Ašik 1849, pl. II, fig. I.
28. Alekseeva 1982, fig. 31.
29. Domanskij and Marčenko 1980, 37, fig. 12, 21.
30. Robinson 1941, F 392.
31. See Robinson 1941, 198, pl. L, 623.
32. On ancient locks, *cf.* Diels 1934, 41-55.
33. Alekseeva 1982, fig. 51, 5.
34. Kruglikova 1975, 80, fig. 35, 2.