

7. THE ARROWS

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Underneath the burial bundle and parallel to the broken bow two cylindrical wooden objects were found (Figs. 7.1, 2), as well as two partial, much deteriorated reed specimens (Fig. 7.3). The two wooden objects seem to have formed the upper parts of arrows, either as foreshafts or as self-sustained blunt-end arrowheads. The reed specimens seem to have been the mainshafts of the arrows. The reconstruction of the four items as elements of two composite arrows is based on comparative Egyptian material (Clark et al. 1974).

Foreshaft/arrowhead No. 1 (607/52/1; Figs. 7.1, 5) is dark brown in colour. It tapers towards both proximal and distal ends. The distal end has been blunted or squared off. The foreshaft is rebated to fit snugly against the mainshaft. The tang was roughly cut, but the upper part of the foreshaft seems to have been somewhat smoothed. Max. length 13.0 cm, tang length 4.6 cm, max. width 0.8 cm, width at rebate 0.6 cm, width at tip 0.5 cm.

Foreshaft/arrowhead No. 2 (607/52/2; Fig. 7.2), of lighter color than No. 1, tapers towards both ends. The distal end is squared off. The tang, about half the length of the complete specimen, was roughly cut. A rebate was cut to ensure a smooth join with the mainshaft. Although the specimen is broken in two pieces, its full length could be determined: max. length 19.3 cm, tang length 9.5 cm, max. width 0.8 cm, width at rebate 0.7 mm, width at tip 0.5 cm.

The wood of the two specimens was identified as olive, the same wood of which the bow had been made (Werker, this volume).

Mainshaft No. 3 (607/52/3; Fig. 7.3) is a slender, hollowed stem, broken and deteriorated. Reddish colour. Extant length 21.6 cm, diameter 0.7 cm.

Mainshaft No. 4 (607/52/4) is similar to No. 3. Extant length: 18.0 cm, diameter not available.

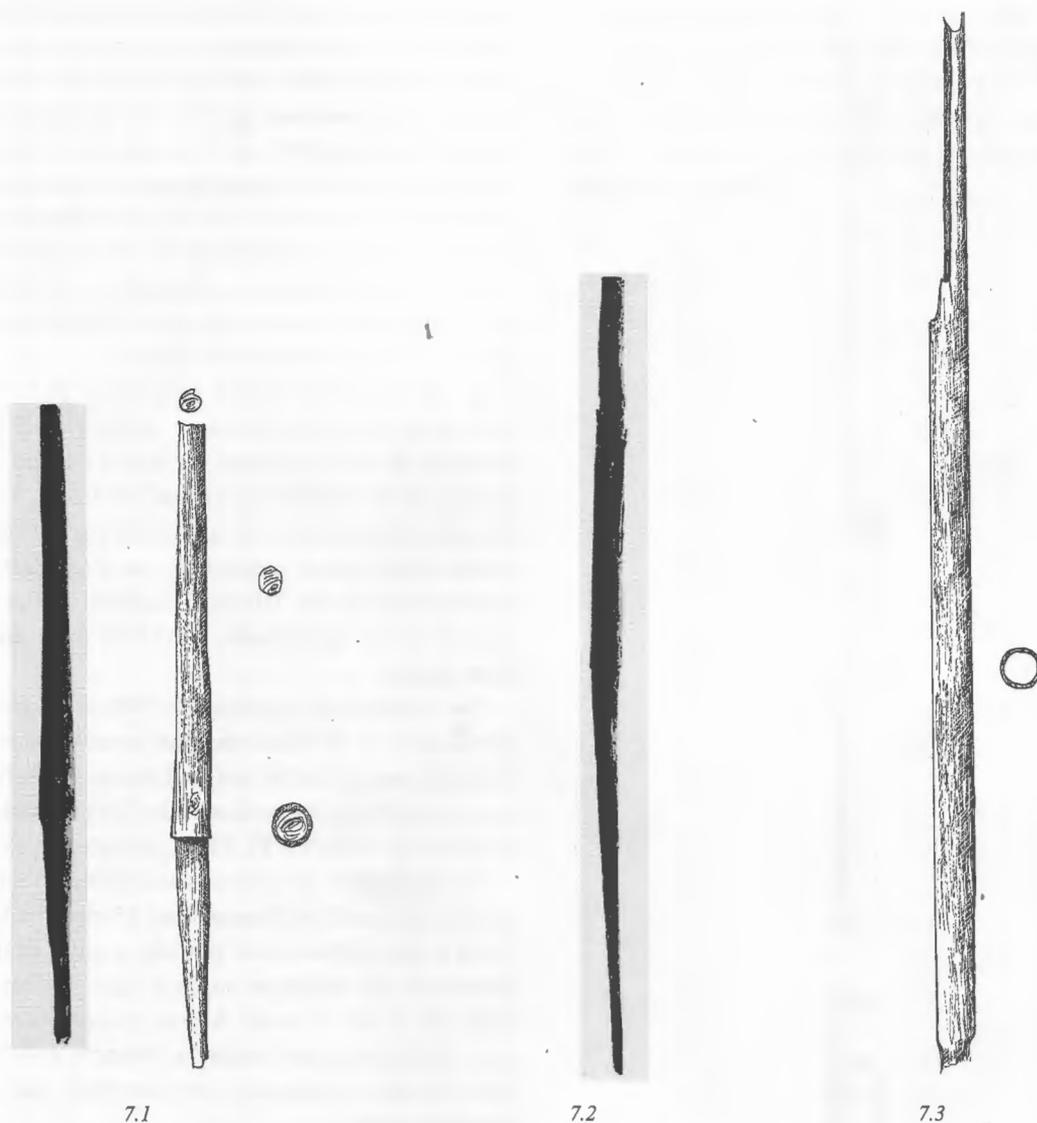
The reeds of Nos. 3 and 4 were identified as stems of either *Arundo donax* or *Phragmites communis*. Both are of similar anatomical structure (Shimony, this volume).

DISCUSSION AND CORRELATIONS

Flint arrowheads of various shapes and sizes are known in the Near East throughout the Neolithic period. Microliths of the lunate, triangle and trapeze varieties may have served as heads of composite weapons as early as the Epipalaeolithic Age. While these flint specimens were found in abundance, the wooden parts of arrows are rare due to their perishable nature. However, our acquaintance with complete arrows is through well-preserved Egyptian finds.

A typical (generalized) arrow from the Predynastic and Dynastic periods in Egypt, namely from the late fourth to the early third millennium BCE and onward, consisted of three parts (Fig. 7.4): the arrowhead, usually a flint microlith, was mounted transversally at the distal end of a wooden foreshaft. The tang of the latter was fitted into a reed mainshaft. A rebate or flange were often cut into the foreshaft to ensure a smooth join between the two parts. The joint area was covered by a thin layer of adhesive, and was bound with a thread. The mainshaft may have been nocked and fletched with vanes, usually three, at the proximal end (Clark et al. 1974:330, Fig. 9). Fletching was performed to steady the arrows (Clark 1963:74).

Complete arrows, showing the three major parts – stone head, wooden foreshaft and reed mainshaft – have been retrieved from many Egyptian burials; however, the finds include wooden specimens, pointed or blunt-ended, serving at once as head and foreshaft (Clark et al. 1974:327, Fig. 9:C, D; Petrie 1901:Pl. xxiv:50–51).



Figs. 7.1–7.3. 1: Foreshaft of No. 1. 2: Foreshaft of No. 2. 3: Mainshaft of No. 3.

The wooden foreshafts from the Cave of the Warrior are of a rebated type which has parallels in Egyptian material. Similar specimens with squared-off tips have been found in Tarkhan and in Naga ed-Der (Clark et al. 1974:349).

The fragmentary condition of the mainshafts from the Cave of the Warrior does not allow the determination of the total length and weight of the arrows, nor the details of the nocks and fletching; however, a reconstruction is suggested (McEwen, this volume).

Indication of the total length of the arrows from Naga ed-Der is 79–86 cm, and 48–55 cm for the specimens from the tomb of Hemaka (Clark et al. 1974:329). Some of the European prehistoric finds suggest longer arrows, up to 102 cm long (Clark 1963:72–73).

The earliest wooden projectiles so far found in our region are the three wooden objects with blunt-end tips from the Naḥal Hemar Cave (Bar-Yosef and Alon 1988: 15, Pl. IV:5, 6, 9). Their shape and dimensions however are different from the Cave of the Warrior's specimens. They belong to the Pre-Pottery Neolithic B assemblage c. 9000 years old.

Six wooden parts of arrows (foreshafts) retrieved from the so-called Cave of the Sandal in the Jericho area, were attributed to the Early Bronze Age (Hanan Eshel and Boaz Zissu, personal communication). A sample submitted for ^{14}C dating to the University of Arizona AMS facility (unpublished sample AA-13441) yielded 4644 ± 43 ybp. The specimens are also blunt-ended, sim-



Fig. 7.4. Reconstruction of a three-part arrow.

ilar to the specimens from the Cave of the Warrior. One of the six arrows has a long tang and rebate, very similar in details to foreshaft No. 2. The tangs of the other five are broken, but they were originally sharpened in a somewhat different manner. No mainshafts nor arrowheads were found with them.

A few wooden parts and reed mainshafts of composite arrows have been found in Structure H11 in a *nawamis*

burial site near ^oEin Huderah in Eastern Sinai (Bar-Yosef et al. 1977; Schick, in preparation). The wood was identified as *Tamarisk* sp. (Werker, personal communication), sometimes used for arrows in Egypt (Western and McLeod 1995:90). The reed shafts were made from *Arundo donax* (Werker, personal communication). The total number of transverse flint arrowheads found at the ^oEin Huderah structures is 171 (N. Arad-Ginzburg, personal communication), pointing to a prevailing use of the bow and arrow in this part of Sinai toward the end of the fourth millennium BCE.

By the end of the fourth millennium BCE the bow and arrow were the principal military and hunting weapons of the Egyptians, as well as of all ancient peoples of the Middle East (Hayes 1953:279). The earliest clear evidence for their use in this part of the world comes from artistic depictions on Predynastic slate palettes such as the 'Hunters' fragment in the Louvre and the Uruk stele (Yadin 1963:119) from about the same period.

The arrows from Cemetery N 7000 at Naga ed-Der, Tomb 1051 at Tarkhan and the tomb of Hemaka at Saqqara, assigned to the late predynastic–early first dynasty, are probably the earliest of the Egyptian collections (Clark et al. 1974:349, Pl. XII:1; pp. 366–367, Pl. XX).

The finds from the early dynastic cemeteries at Naga ed-Der excavated by Reisner, have formed the basis for Clark's classification and provide a great deal of information on Egyptian archery and craftsmanship. Different kinds of wood, *Acacia* predominating, were used for shaping the foreshafts (Western and McLeod 1995:93), while *phragmites* (common reed) was used for the mainshafts.

The Bowman's arrows were expendable and he required a number of them (Fischer 1961: Fig. 5). To judge from the eastern Spanish rock paintings, the hunters of that region were accustomed to hand-carry spare arrows alongside the bow, even when in the act of releasing an arrow (Clark 1963: Fig. 18).

Indeed, in the few examples mentioned above, the arrows were found in groups: six in the ^oEin Huderah *nawamis* site and six in the so-called Cave of the Sandal (H. Eshel and B. Zissu, personal communication). Fourteen arrows, twelve of which were unfinished, were found in a quiver of the famous Iceman (Egg 1993: Figs. 7–14, Pls. VIII, 2.3, IX–X).

Whether the two arrows found with the Warrior were already fragmentary when placed in the burial remains an open question. Neither are we able to say whether their incomplete condition (no stone arrowhead) had

the same symbolic meaning that we ascribe the broken bow. If our specimens were used without any additional stone heads, then they may have been bumper-type arrows, used mostly for hunting birds and small game. McEwen (this volume) is of the opinion that they could not have served as efficient arrows and prefers the flint head alternative.

More finds of this category are needed for comparison with the existing Egyptian specimens for a fuller reconstruction of the art of archery in the Ancient Near East. Such finds may help us differentiate between elements used in warfare and those used in hunting, and understand their sociology.



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