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AN EB IV DAGGER FROM TELL ES-SULTAN/JERICHO*

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The paper is focused on dagger TS.14.143, a weapon found in the Jericho Necropolis in an EB IV shaft tomb unfortunately violated by illegal diggers in the area of Cemetery A recovered by archaeologists. Such an item allows a series of observation on this renowned class of weapons, widely spread over Southern Levant during the Early Bronze Age IV.

Keywords: Tell es-Sultan/ancient Jericho; dagger; copper; weapon; EB IV

0. PREMISE

Early Bronze IV (2350/2300-2000 BC) is the period in which metal items have a wide diffusion in Southern Levant. In this phase, the number of weapons deposited in funerary kits grew up in respect of previous periods, especially among grave goods of a distinguished class of individuals bearing daggers, which stand as the most widespread class of weapons,[1] as it can be exemplarily observed in the necropolis of Tell el-'Ajjul and Tell es-Sultan.[2]

The number of tombs with metal weaponry in Early Bronze IV was considered a proof of the emergence of a military class.[3] Daggers in tombs were useful to display social rank, as well as to indicate the male gender, as a result of shifted social needs, changed economic conditions and subsistence strategies, compared to ones of the preceding urban phase.[4]

In this period also labeled "Intermediate Bronze Age" due to several basic innovation which distinguish it from the linear development of the Early Bronze Age, new technologically advanced skills were accomplished, such as the tin copper alloy, and new types were manufactured, such as fenestrated axes,[5] anticipating a future development of Middle Bronze Age metallurgy.[6]

1. THE DAGGER TS.14.143 FROM TELL ES-SULTAN/ANCIENT JERICHO

The dagger TS.14.143 (fig. 1) was recovered in the area north of Tell es-Sultan by a villager of the refugees camp, who entrusted it to the Italian-Palestinian Expedition to Tell es-Sultan/ancient Jericho (Rome "La Sapienza" University and MOTA-DACH).[7] The finding spot (and presumably the location of the tomb which contained it) is conceivably

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1 Muhly 2003, 175.

2 Kenyon 1956.

3 Oren 1971; Philip 1995; Thalmann 2000, 50-53; Antonetti 2003; 2005, 6, 20; Doumet-Serhal 2004; Doumet-Serhal - Kopetzky 2011-2012, 9-10; Cohen 2012.

4 Palumbo 1986; Nigro 2003a, 41; D'Andrea 2013, 139.

5 Nigro 2003a.

6 Khalil 1980, 161; Merkel - Dever 1989, 1; Philip 1991, 94; 1995, 153; Cohen 2009, 3; 2012, 313.

7 Nigro - Marchetti 1998; 2000; Nigro - Sala - Taha 2011; Nigro - Taha eds. 2006; Nigro - Taha 2009; Nigro *et al.* 2000; 2011.

Area A of Early and Middle Bronze Ages necropolis of Jericho. The weapon is an almost complete short dagger, attributable, as it is argued below (§ 2.), to the group of the EB IV simple type well-known at the site in funerary repertoires.

1.1. *Dagger TS.14.143 in detail*

Class: short dagger; type: simple tang - 4 rivets (?); site: Tell es-Sultan/Jericho; field number: TS.14.143; site period: Sultan IIId1 (?); type of context: funerary (shaft individual tomb); length: tang 2.5 cm, blade preserved 7.9 cm; width: tang max preserved 1.9 cm, blade 2.3 cm; thickness: tang 0.3 cm, blade 0.25 cm; weight: 23 g; state of preservation: middling; date: EB IVA (?).

The dagger TS.14.143 is preserved little more than half of its reconstructed full length (19.5 cm; see below). It is damaged on a side of the tang, and the tip is unfortunately broken. Four rivets originally were placed on two rows in the tang, as it is still recognizable even though the weapon surface is corroded (fig. 4). In the lower row one rivet hole is visible, and the other one is partially detectable in the fractured section; in the upper row, the first rivet hole is placed 1.3 cm above the other preserved in the lower row, and a second one is symmetrically placed on the opposite end, above the broken part (fig. 2).

The tang has a quadrangular, nearly trapezoidal, shape showing the maximum width just in front of the upper row of rivets. Holes for rivets, occluded by corrosion products, had a circular shape, as like it is attested in other specimens,[8] to accommodate them which usually have a quadrangular cross-section.[9]

The cross-section of the weapon is thin and flattened along its overall length.

On the basis of dimensions of tang and of preserved blade, and comparing to ones of some daggers known, the original length of the blade had to be roughly 17 cm, and the whole length of the weapon had to be around 19.5 cm (fig. 3).

As far as it concerns the material composition of the dagger, corrosion analysis suggests that it was made by an alloyed copper, probably with arsenic, a quite common feature in respect of attestation in the Jericho Necropolis during EB IV (§§ 2.-3.).

2. EARLY BRONZE AGE SOUTHERN LEVANTINE DAGGERS

The weapon can be ascribed to the functional class defined as close-range weapons,[10] a kind of weaponry which began to appear since initial phase of the Early Bronze Age, primarily in funerary and ritual contexts.

Such class of copper (and in some cases copper-alloyed) weapons is characterized by the short length of the blade (up to 18 cm in the case of short daggers, and from 20 cm up to

8 See for example round holes in daggers from Tomb 1570 at Tell el-Ajjul (Petrie 1932, pl. XI:54), and from Great Cave 1001 at Tell el-Jazari (Rowe 1935, pl. IV).

9 Nigro 2003b, 69. See for example squared rivets in daggers from Tomb SE.1 at Tiwal esh-Sharqi (Tubb 1990, fig. 40b), and Tomb 64 at Tell el-'Umeiri (Dubis 2002, fig. 11.2:7).

10 Burke 2008, 41.

30 cm for the regular type).[11] Daggers types can be also subdivided according to the composition of the metal (copper, arsenical copper, and tin copper).

A further mean of classification is the tang or the stick which allowed to fix the handle to the metal blade.[12] The tang could be simple, developed, or peduncolar.

The simple group usually has a plain blade naturally linked to the tang. This part can culminate either in a round or in a quadrangular shape, wearing in most cases four rivets placed on two rows, as it is the case of the dagger from Jericho, or less frequently six on three rows; more rarely rivets are three arranged in a triangle. In this group, short and regular blade types are equally represented. The blade has generally a lenticular or lozenge shaped cross-section, especially in the short type; the regular type exhibits sometimes a midrib. Daggers with simple tang in the period between EB I-III were made mainly of copper, and of arsenical copper (with a low arsenic content); during the subsequent phase of EB IV, they were made mainly of arsenical copper with a percentage of arsenic generally encompassed between 1.5% and <5%, and secondly of tin copper with a highly variable percentage of tin (>3% up to 15%).[13]

Dagger TS.14.143 shares its diagnostic features with such simple type. The tang and blade lengths allow the attribution of the weapon to the short daggers group.

2.1. *EB daggers of simple type from Tell es-Sultan/ancient Jericho*

The class represented by TS.14.143 is well illustrated in the Jericho Necropolis. Daggers collected in the necropolis of Tell es-Sultan (tab. 1) may illustrate in a very clear way the simple type of short and regular daggers. The tang can be either rounded or quadrangular shaped, wearing in most cases four rivets placed on two rows; in a few cases rivets could be three, arranged in a triangle, or six on three rows. Some blades present midribs.

The quadrangular tang is frequently associated to the presence of four rivets, of midribs, in the simple group specimens from the Jericho Necropolis, which are predominantly of the regular type.

Daggers from EB Tell es-Sultan/Jericho were basically made of copper and arsenical copper, just a few specimens made of tin copper are known. Among arsenical copper items, two clusters can be detected according to the content of arsenic: one shows an average percentage of arsenic at 2%, and another has an average percentage of arsenic at 4%. These data allow to distinguish three groups: it might be tentatively attributed to different chronological phases. The latest one is the one including tin copper, which thus appear as a later introduction in EB IV development.

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11 These daggers are represented by types 18 of Maxwell-Hyslop's classification (1946, 21), 2 of Philip's typology (1989, 103-104), and by P.3 and P.5 listed by Gernez (2007, 472-480, 482-486).

12 Tubb 1990, 95.

13 These data derive from main publications: Kenyon 1960; 1965; Khalil 1980; Philip 1989; 1991.

TOMB	TYPE OF DAGGER (Short; Regular)	TANG AND RIVETS (Simple; Developed)	METAL	WEIGHT (g)	LENGHT (cm)	WIDTH (cm)	THICKNESS (cm)	DATE
A 23 *Dagger T.*	S	S - 4 rivets	-	-	tang 3.6; blade 17.2; tot. 20.8	tang 2.6; blade 3	blade 0.8	EB IVA
A 110 *Dagger T.*	S	S - 4 rivets	Cu 93.1%, As 1.91%	95	tang 3.8; blade 15.7; tot. 19.5	tang min 2.1, max 3.1; blade 3	tang 0.5; blade 0.5	EB IVA
A 111 *Dagger T.*	S	S	Cu 98.1%, As 1.9%	61	preserved tang 2.7; blade 17.7; tot. 20.4	blade 2.5	blade 0.4	EB IVA
A 132 *Dagger T.*	S	S - 4 rivets	-	58	tang 2.6; blade 16.5; tot. 19.1	tang max 2.4; blade max 2.3	tang 0.3; blade 0.5	EB IVA
L 1 (1:2) *Dagger T.*	S	S - 4 rivets	-	-	tang 2.8; blade 16; tot. 18.8	tang 2; blade 2	tang 0.4; blade 0.4	EB IVA
L 3 *Dagger T.*	S	D - 4 rivets	-	-	tang 3.2; blade 17.2; tot. 20.4	tang 2,4; blade 2	tang 0.4; blade 0.6	EB IVA
L 5 *Composite T.*	S	S - 4 rivets	-	-	tang 4; blade 19.2; tot. 23.2	tang 2.8; blade 2.6	tang 0.6; blade 0.6	EB IVA
L 6 *Dagger T.*	S	S - 4 rivets	Cu 96.04%, As 3.96%	-	tang 2.8; blade 20; tot. 22.8	tang 3; blade 2.8	tang 0.2; blade 0.6	EB IVA
D 1 *Square-Shaft T.*	S	D - 5 rivets	Cu 96.67%, As 2.71%	-	tang 4.8; blade 16.8; tot. 21.6	tang 2.4; blade 3	tang 0.4; blade 0.5	EB IVA
TS.VAT.2 *Dagger T.*	S	S - 4 rivets	Cu 88%, As 11.2%	31.4	tang 2; blade 15.3; tot. 17.3	tang 1.6; blade 1.7	blade 0.4	EB IVA
A 26 (26:2) *Dagger type*	R	D - 1 rivet	Cu 95.58%, As 4.36%	96	preserved tang 2.3; blade 28; tot. 30.3	tang 1.7; blade 2.3	tang 0.2; blade 0.5	EB IVA
A 28 *Dagger T.*	R	S - 6 rivets	Cu 98.51%, As 1.49%	-	tang 3.8; blade 20.8; tot. 24.6	tang 3.2; blade 2.6	blade 0,8	EB IVA
A 82 *Dagger T.*	R	S - 3 rivets	-	-	tang 4; blade 21.6; tot. 25.6	tang 2.4; blade 2.8	tang 0.4; blade 0.6	EB IVA
A 86 *Dagger T.*	R	S - 3 rivets	Cu 96.21%, As 3.82%	-	tang 3.2; blade 22.4; tot. 25.6	tang 3.2; blade 2.8	tang 0.4 ; blade 0.8	EB IVA
A 91 *Dagger T.*	R	S - 3 rivets	-	-	tang 3.6; blade 20.8; tot. 24.4	tang 2; blade 2.8	tang 0.8; blade 0.8	EB IVA
A 95 *Dagger T.*	R	S - 4 rivets	Cu 95.28%, As 3.31%	-	tang 2.8; blade 22; tot. 24.8	tang 2.8; blade 3.2	tang 0.4; blade 0.6	EB IVA

A 128 *Dagger T.*	R	S - 4 rivets	-	-	tang 2.8; blade 22.4; tot. 25.2	tang 2.6; blade 2.4	tang 0.6; blade 0.6	EB IVA
A 129 *Dagger T.*	R	S - 4 rivets	-	-	tang 3.8; blade 23.6; tot. 27.4	tang 2.4; blade 2.6	tang 0.4; blade 0.6	EB IVA
A 131 (131:1) *Dagger T.*	R	S - 4 rivets	Cu 97.9%, As 2.1%	162	tang 4; blade 29; tot. 33	tang 2.7; blade 2.7	tang 0.7; blade 0.7	EB IVA
A 131 (131:2) *Dagger T.*	R	S - 4 rivets	Cu 98.72%, As 1.28%	-	tang 4; blade 24.8; tot. 28.8	tang 2.8; blade 2.8	tang 0.4; blade 0.4	EB IVA
A 26 (26:1) *Dagger T.*	R	S - 4 rivets	Cu 95.24%, As 4.76%	145	tang 3.7; blade 24; tot. 27.7	tang 2.9; blade 2.8	tang 0.5; blade 0.7	EB IVA
B 14 *Dagger T.*	R	S 4 rivets	-	-	tang 3.2; blade 22.8	tang 2.6; blade 2.8	blade 0.8	EB IVA
G 83 *Composite T.*	R	D - 6 rivets	Cu 84.9%, Sn 15%	143	tang 5.8; blade 31.9; tot. 37.7	tang 2.7; blade 3	tang 0.3; blade 0.6	EB IVB
K 26 *Bead T.*	R	S - 4 rivets	-	-	tang 3.6; blade 24.4; tot. 28	tang 2.6; blade 2.4	tang 0.6; blade 0.8	EB IV
L 1 (1:1) *Dagger T.*	R	S - 4 rivets	-	-	tang 4; blade 25.2; tot. 29.2	tang 2.6; blade 2.8	tang 0.6; blade 0.6	EB IVA
L 2 (2:6) *Composite T.*	R	S - 4 rivets	-	-	tang 2.8; blade 21.6; tot. 24.4	tang 2.4; blade 2.4	tang 0.8; blade 0.8	EB IVA
L 2 (2:5) *Composite T.*	R	S - 6 rivets	-	-	tang 6; blade 24; tot. 30	tang 2.8; blade 2.8	tang 0.4; blade 0.4	EB IVA
L 4 *Dagger T.*	R	S - 3 rivets	Cu 87.95%, Sn 8.45%, As 3.6%	-	tang 3.6; blade 21.6; tot. 25.2	tang 2.8; blade 2.6	tang 0.4; blade 0.4	EB IVA
L 7 *Composite T.*	R	S - 4 rivets	-	-	tang 4.4; blade 23.6; tot. 28	tang 2.8; blade 2.8	tang 0.2; blade 0.4	EB IVA
M 13 *Composite T.e*	R	S - 4 rivets	-	-	tang 5.2; blade 21.6 tot. 26.8	tang 2.4; blade 2.4	tang 0.6; blade 0.8	EB IVB
M 16 *Composite T.*	R	D - 6 rivets	Cu	109	tang 6.2; blade 21.4; tot. 27.6	tang min 2 max 2.8; blade 3	tang 0.3; blade 0.5	EB IVB
P 12 *Outsize T.*	R	S 2 rivets	-	-	tang 2.8; blade 22.8; tot. 25.6	tang 2; blade 2	blade 0.3	EB IVA
TS.VAT.1 *Dagger T.*	R	S - 4 rivets	Cu 98%	175.7	tang 3.8; blade 24.8; tot. 28.6	tang 2.8; blade 3	tang 0.5; blade 0.7	EB IVA

Tab. 1 - Comparative table of daggers recovered in Early Bronze IV tombs of Jericho Necropolis.

3. Comparisons to the dagger TS.14.143

Consistent comparisons to dagger TS.14.143 can be observed within the repertoire of Tell es-Sultan, in specimens dated to the EB IV, and among weapons recovered in other coeval Southern Levantine necropolis.

TS.14.143 can be paralleled particularly with two short daggers and to one regular dagger recovered in three tombs of Tell es-Sultan, namely Tombs A110 and L1,[14] and Tomb A131,[15] all graves belonging to the Dagger Type group[16] and dated to EB IVA.[17]

The short dagger from Tomb L1 (fig. 5:2) possibly represents the more reliable comparison. In fact, it exhibits the same overall dimensions and shows a very alike trapezoidal tang, with four rivets arranged in a similar way, and a blade that develops in the same manner, but with a thicker trapezoidal cross-section.[18]

The dagger from Tomb A110 (fig. 5:3), made of arsenical copper, exhibits a roughly trapezoidal tang with four rivets, similarly to TS.14.143, but in respect of the latter one it has a thicker and lozenge shaped cross-section.[19]

The regular dagger from Tomb A131 (fig. 5:4), made of arsenical copper, has a trapezoidal tang, but more expanded due to greater dimensions, four rivets, a similar plain shape of the blade, but a more bulged trapezoidal cross-section.[20]

Extending the look to other sites of the Southern Levant, comparable specimens can be also found in necropolis of Tell el-'Ajjul, in Palestine, and of Tell el-'Umeiri, in Transjordan. The regular dagger from Tomb 1531 at Tell el-'Ajjul (fig. 5:5),[21] made of arsenical copper and dated to the EB IVB, similarly to TS.14.143 has a trapezoidal tang, but more marked, with four rivets and a plain blade with thin but lozenge shaped cross-section. The regular dagger recovered in Tomb 64 at Tell el-'Umeiri (fig. 5:6),[22] made of bronze, is characterized by a roughly trapezoidal tang with four rivets, a plain blade and a lozenge shaped cross-section.

4. Conclusions: a new dagger from the EB IV Jericho Necropolis

In Southern Levant, daggers appear in funerary equipment since the beginning of the Early Bronze Age, made of copper and, at later stage, of alloyed copper (basically arsenic), and they are displayed alone or, more rarely, with other weapons, such as javelins.[23]

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14 Respectively: Kenyon 1960, 196, fig. 70:10; 1965, 54-56, fig. 24:8.

15 Kenyon 1965, 52-53, fig. 24:5.

16 Kenyon 1960, 181-182.

17 Nigro 2003c, 136-137.

18 Tomb L1 is a single crouched burial; the dead was provided with two daggers, placed near the forearms near hands, and some sheep's bones.

19 Tomb A110 is a single crouched burial equipped with the dagger.

20 Tomb A131 is a double burial, originally crouched, both deceased were provided with a dagger, displaced beside the chest.

21 Petrie 1932, pl. XI:57.

22 Dubis 2002, 226, fig. 11.2:7.

23 Montanari 2013, 110.

Moreover, short daggers of simple type, as like as dagger TS.14.143, are attested during each phase of the Early Bronze Age and homogeneously widespread in the region, placing themselves as an emblematic class of weaponry of the Southern Levant.

The simple indication available about the original context of the newly discovered dagger from Jericho, as well as its just illustrated features and comparisons suggest that dagger TS.14.143 was originally deposited in an Early Bronze IVA shaft tomb, probably belonging to the so-called "Dagger Type" group. Tombs of this kind were located in Areas B, G, L, and mainly in Area A, where well-fitting comparisons to TS.14.143 were retrieved. The latter was located directly to the north-west of the tell, where dagger TS.14.143 was presumably collected.

In conclusion, dagger TS.14.143 highlights a common type of short daggers occurring in a vast number of individual tombs (tab. 1), which may be associated with a distinguished social group (warriors?), even though such weapons may have been more widely and simply intended to stress the social rank of their owners, not necessarily in a direct connection to a military class.

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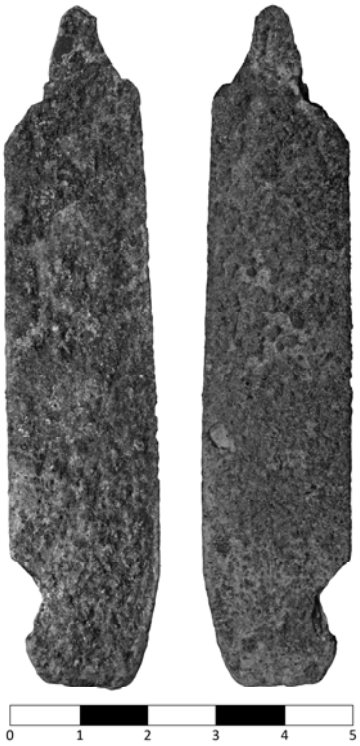

Fig. 1 - Dagger TS.14.143 from Tell es-Sultan/ancient Jericho.

Fig. 2 - Detail of trapezoidal tang and rivet holes of dagger TS.14.143 from Jericho.

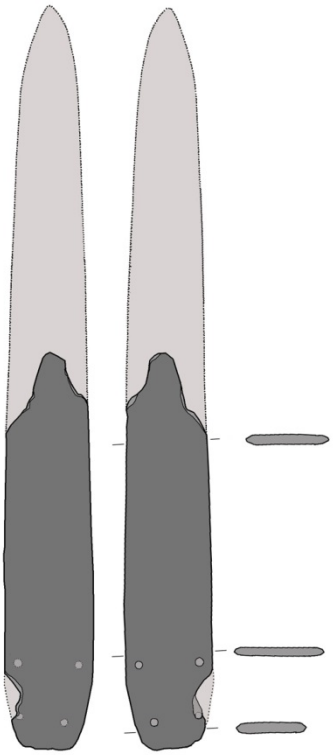

Fig. 3 - Reconstructive drawing of the dagger TS.14.143 from Tell es-Sultan/ancient Jericho, ratio 1:2.

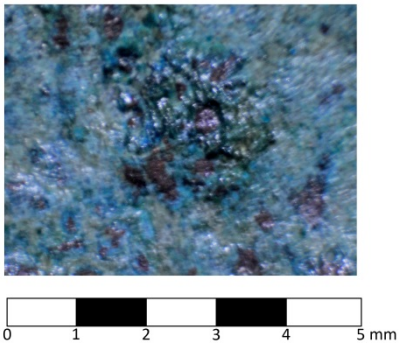

Fig. 4 - Magnification of the lower preserved rivet hole.

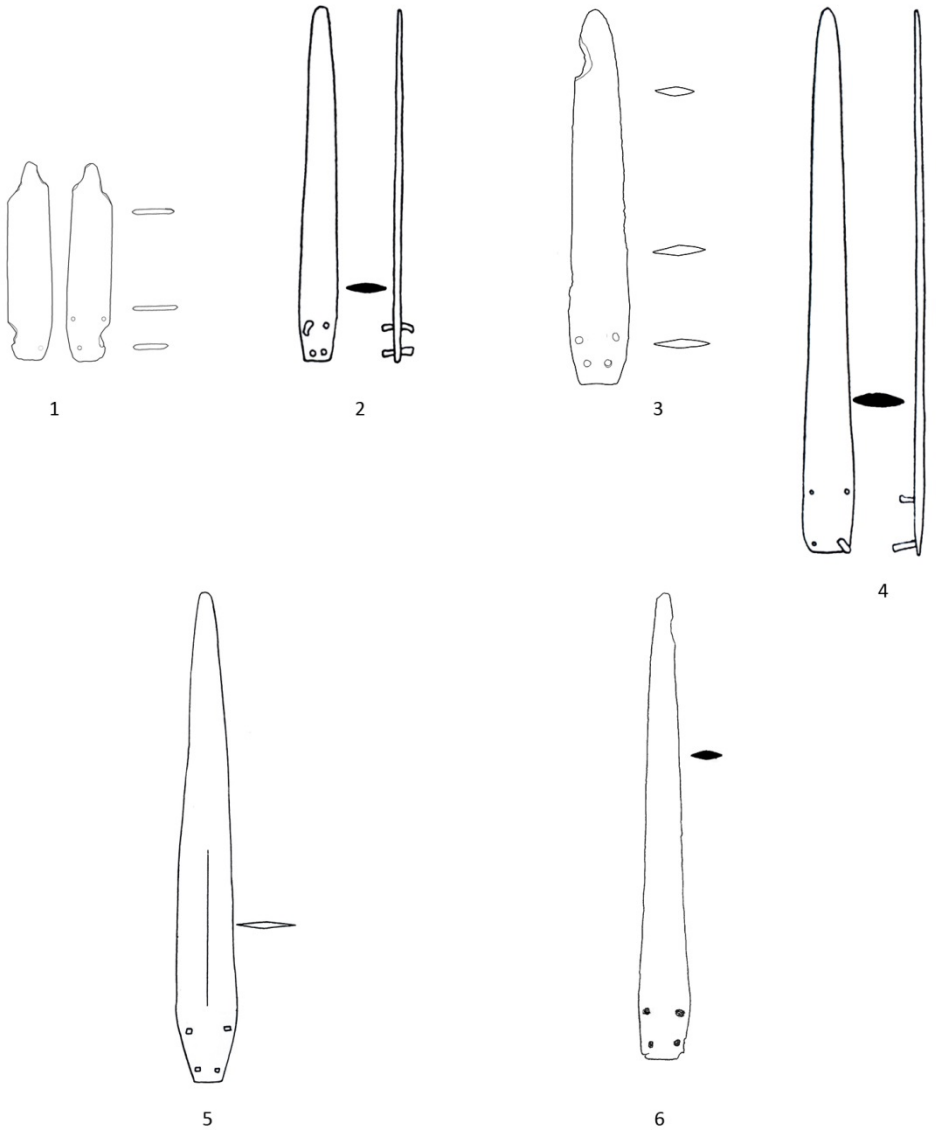

Fig. 5 - Plate of comparisons to dagger TS.14.143 (n. 1); 2, short dagger from Tomb L1, Tell es-Sultan/ancient Jericho (after Kenyon 1965, fig. 24:8); 3, short dagger from Tomb A110, Tell es-Sultan/ancient Jericho (after Kenyon 1960, fig. 70:10); 4, regular dagger from Tomb A 131, Tell es-Sultan/ancient Jericho (after Kenyon 1965, fig. 24:5); 5, regular dagger from Tomb 1531, Tell el-'Ajjul (after Petrie 1932, pl. XI:57); 6, regular dagger from Tomb 64, Tell el-'Umeiri (after Dubis 2002, fig. 11.2:7) (ratio 1:4).