

GOLIATH'S JAVELIN AND THE מנור ארנים

By YIGAEL YADIN

1. The weapons of Goliath the Philistine, are described (I Sam. xvii, 5-7) in a most vivid and detailed manner. This description—invaluable to the study of ancient Hebrew nomenclature of weapons and armour—is fairly clear¹, but for the tantalizing description of the javelin²: **ועץ חניתו כמנור ארנים**³ which is rendered in the English Bible: “And the staff of his spear *was* like a weaver’s beam.”

The **מנור ארנים** (= M.O.) occurs in only three more passages dealing with the exploits of David’s heroes⁴ and always (as in I Sam. xvii, 7) in describing their opponents’ javelins: a Philistine (II Sam. xxi, 19; I Chron. xx, 5)⁵ or an Egyptian (I Chron. xi, 23)⁶.

The difficulty in grasping the exact meaning of the simile, arises from the fact that on the one hand, all the commentators saw in the M.O. an indication of the size of the spear⁷, while on the other hand, some of the studies in search of the exact identification of the M.O. with some part of the loom or the weaver’s tools, have pointed towards the *heddle* or the *heddle-rod*, which—to say the least—is neither the biggest nor the thickest part of the loom⁸.

To overcome this difficulty most of the scholars either preferred to identify the M.O. with other parts of the loom, which are definitely big and thick, or (the minority) to suggest that the *heddle-rod* could, in certain cases, be the loom’s thickest part. As will be seen from the following discussion and the evidence at our disposal, both of these assertions seem unsupported.

¹ New light is shed on the meaning of the **כידון** in the Dead Sea Scroll: “The battle between the Sons of Light and the Sons of Darkness,” p. V, ll. 11-14. (E. L. Sukenik, *Ošar Hamegillôth Hagenûzôth*, Jerusalem, 1954). For a detailed discussion of this weapon, (which should apparently be identified with a certain type of sword), see my forthcoming commentary on the above mentioned Scroll.

² **חנית**. This word should (in my opinion) be rendered as *javelin*, i.e. a missile weapon (cf. I Sam. xviii, 11) in contrast to the **רמה** which is the spear, used mainly for thrusting (cf. Numb. xxv, 7-8). See my

forthcoming commentary *op. cit.* (supra n. 1) to p. V, l. 6.

³ So the Q, and the similar or parallel occurrences. The K. is **וחץ**.

⁴ On these see my article: “Let the Young Men, I pray Thee Arise and Play before us,” in the *Journal of the Palestine Oriental Society*, 1948, xxi, p. 110 ff.

⁵ **ועץ חניתו כמנור ארנים**

⁶ **חנית כמנור ארנים**

⁷ Which must have been very heavy as we learn from the statement that the javelin’s head weighed “six hundred Shekels of iron.”

⁸ See below.

The only way to find the exact meaning of the simile is to analyse each element in the description separately and in great detail and ascertain its nature:

- (a) Which part of the loom, irrespective of its size or characteristics, could be identified—on philological and archaeological grounds compared with the still surviving terms among the Arab weavers in Palestine—with the **מנור ארנים**?
- (b) Which type of javelin—particularly those rare but mainly current in the Aegean and Egyptian worlds—would best fit the equation with the M.O.?

Before trying to answer those questions, we should, I believe, free ourselves from the assumption that the simile refers only—or at all—to the *size* of the shaft. Although this *could* be the case, we must remember that the Bible simply says that the shaft, or the javelin, was *like* a **מנור ארנים**.

The description of the weapons of the giant warrior, although it naturally refers to their unusual size—as must also have been the case with his javelin)⁷—emphasizes at the same time their unusual character and quality⁹, as seen by the poorly-armed Israeli peasant¹⁰.

2. In trying to ascertain the construction of the ancient looms and manner of weaving, it is unnecessary for us to go into the problems of the date of invention of various types of looms—horizontal and vertical—as in the period under discussion both types were already in vogue¹¹. Furthermore, as the basic elements of the looms and manner of weaving are essentially the same in all types of *primitive* looms—ancient¹² or modern¹³—I think the following quotation from Roth's most enlightening book¹⁴, would serve our

⁹ The emphasis on the quality of the armour and weapons is obvious ("helmet of brass"; the *brass* coat-of-mail; greaves of *brass*, etc.) together with the stress on the unusual type of weapons: "and a kidôn of brass between his shoulders" (see supra n. 1) a **שריץ קשקשים** etc. The impression that these metal weapons and armour (particularly the iron) made on the Israelites, must have been very great. See next note.

¹⁰ "Now there was no smith found throughout all the land of Israel: for the Philistines said, lest the Hebrews make *them* swords or spears." (I. Sam. XIII, 19.)

¹¹ See *inter alia*, H. Ling Roth: Ancient Egyptian and Greek Looms, *Bankfield Museum Notes*, second series, No. 2, Halifax, 1913, p. 14 ff; C. H. Juhl in Ebert's *Reallexicon der Vorgeschichte*, S.V. Webstuhl, [B. Ägypten] p. 261 ff; G. M. Crowfoot: Linen Textiles from the Cave of Ain Feshkha in the Jordan Valley, *PEQ*, 1951, p. 30.

¹² In addition to those mentioned in n. 11, consult: H. Ling Roth & G. M. Crowfoot in *Ancient Egypt*, 1921, p. 97 ff; H. E. Winlock: Heddle-Jacks of Middle Kingdom Looms, *Ancient Egypt*, 1922, p. 71 ff; Lillian M. Wilson: *Ancient Textiles from Egypt in the University of Michigan Collection*, Ann Arbor, 1933; E. Vogt: *Gefechte u. Gewebe der Steinzeit*, Basel 1937, p. 97 ff.

¹³ See in particular G. Dalman: *Arbeit u. Sitte in Palästina*, V. 1937 (in various places to be mentioned in the course of the present discussion); Grace M. Crowfoot: The Vertical Loom in Palestine and Syria, *PEQ* 1941, p. 141 ff; *idem*: Handicrafts in Palestine, *PEQ* 1944 p. 121 ff.; *idem*: The Tent Beautiful, etc. *PEQ* 1945, p. 34 ff. Other studies dealing with weaving will be mentioned later. See also next note.

¹⁴ H. Ling Roth: *Studies in Primitive Looms*, 3rd ed. Halifax, 1950 p. 1 ff.

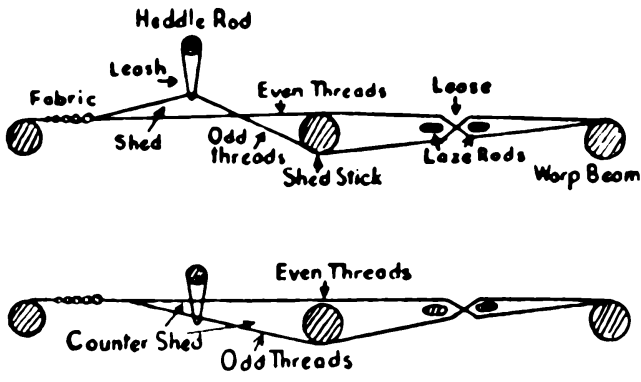


Fig. 1.

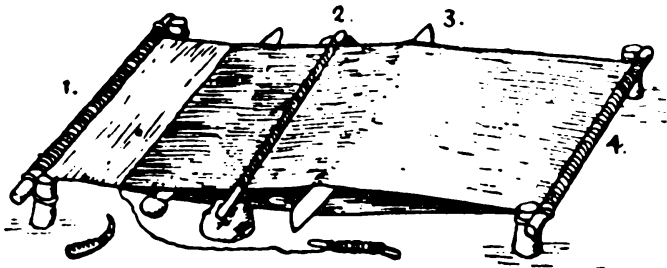


Fig. 2.

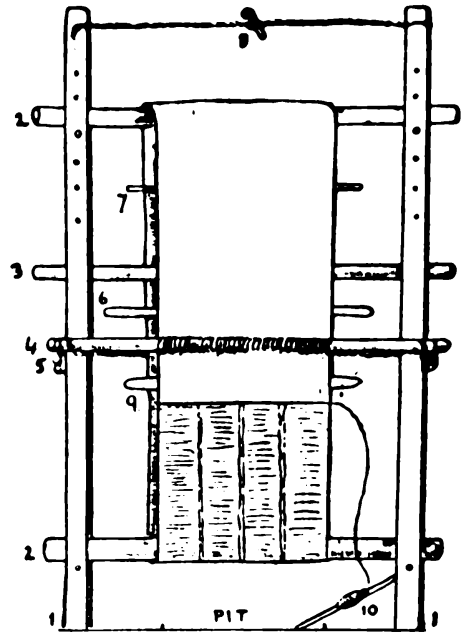


Fig. 4.

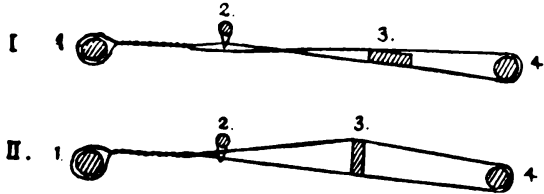


Fig. 3.

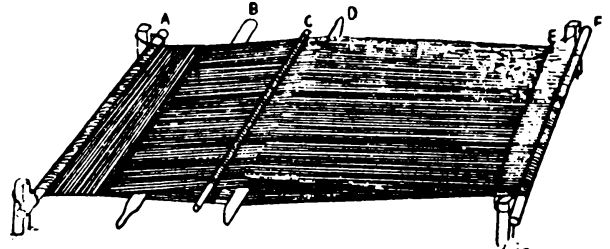


Fig. 5.

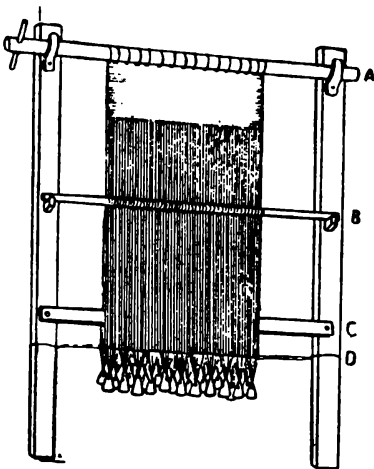


Fig. 6.

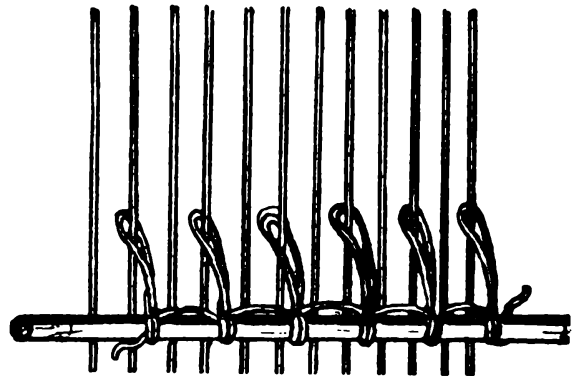


Fig. 7.

purpose admirably, as it enumerates all the beams and sticks in a loom which could potentially be identified with the M.O. (see figs. 1-7):

“ It [weaving] consists of the interlacing at right angles by one series of filaments or threads, known as the *weft* (or woof) of another series known as the *warp*, both being in the same plane. The warp threads are stretched side by side from a *cloth* or *breast-beam*, to another beam known as the *warp-beam*, often spoken of as *the beam*, and the weaving is encompassed as follows: The *odd threads* (1, 3, 5, 7, 9, etc.) are raised by means of the fingers, leaving the *even threads* (2, 4, 6, 8, 10) in position. By raising the odd threads only, a space or opening is formed between the two sets of threads, which is called the *shed*. Through this shed the weft thread is passed, or as it is termed, a *pick* or *shot* is made. This weft thread (or pick) is straightened and pressed home into position at right angles to the warp by means of a *sword* or *beater-in*. The odd threads are then dropped back into position and the even threads are now raised instead, whereby a new or countershed is produced and the pick made as before . . .

To make the work easier and more expeditious, a rod, the heddle, or *heald-rod*¹⁵, is placed across the warp; to this rod the odd warp threads are lightly attached by a series of *loops* or *leashes*, so that when the rod is raised all the odd threads are raised together instead of singly by the fingers and through the shed so formed the pick is made. When the rod is dropped, the odd threads fall back into position, between the even threads. But as the even threads are now not raised, the odd threads must be made to fall below the even threads to make the next or countershed.

The odd threads are therefore pulled down at first by the fingers, and in the counter shed so made a thick rod or *shed-stick* is inserted. This shed-stick remains in this position until the whole warp is used up, or, in other words, the piece of cloth is woven, and its action may be described as follows: When the heddle is raised, the pick made, and the heddle dropped again, the shed-stick, owing to its thickness, forces the odd threads below the even threads, and so the counter shed is obtained¹⁶. . . . The difficulty experienced in keeping the warp threads from getting entangled one with another, especially when these threads are long and the cloth to be woven is broad, is overcome by crossing them with one or two pairs of rods . . . This crossing of the warps is called a *lease*, and hence the rods are called the *lease-rods*, corrupted into *laze-rods* . . . in the

¹⁵ Called also the *leash-rod* (Y.Y.)

¹⁶ In fact the same result—*i.e.* of obtaining a shed and counter-shed, can be achieved by having a permanently-raised heddle-rod and a *flat* shed stick, as is for example the case in the primitive loom described by G. M.

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Crowfoot, *op. cit.* (supra n. 13) *PEQ*, 1944, p. 124: “ The heddle rod being permanently raised, gives the shed, and to obtain the counter-shed, the shed rod is turned on edge, thus facing the shed rod threads above in their turn.” See Figs. 2-3.

quite early stages the warps are more or less bunched at the lease, and do not require any laze-rods."

Now which of the above mentioned rods and beams is the מנור?

3. Let us deal first with the etymology of the word. All the scholars have pointed out that the mānôr must be connected etymologically with the Syr. ܢܦܢ, Aram. ܢܦܢ, Heb. נִיר and Arab. نِير¹⁷. While all these words basically denote the *yoke*—as in the Acc. nîru¹⁸—they are also used as a technical term for the *heddle*¹⁹. The reason for that can be easily understood if one looks at Figs. 1, 2, 3, 7, where one can see that the primitive heddle (in particular in the horizontal looms) greatly resembles the *yoke*, i.e., a horizontal shaft with loops hanging from it around the necks of the 'animals'/the threads. The primitive *heddle* being no more than the shaft and the leashes, it is no wonder the word *nîr*—although clearly and basically denoting the heddle as a whole²⁰—is used sometimes (but not exclusively) to denote the leashes²¹ and sometimes the rod²². Having established the connection between the מנור and the *nîr*, (= the heddle), it is logical to assume that the מנור must be either identical with it, or more probably—because the Biblical simile concerns the shaft of the javelin—the *heddle-rod*.

The identification of the מנור with the heddle-rod is supported by the Greek and Latin versions. While the LXX renders the מנור in I Sam. xvii, 7, by a most obscure and unknown word: μέσακλου²³, Aquila's and Theodotion's: ἀντίον—agrees with the LXX's rendering of the mānôr, in all the other passages mentioned above²⁴. The ἀντίον is explained by the

¹⁷ See all the dictionaries *s.v.* מנור.

¹⁸ Used most frequently in defining the chariot-horses as *horses harnessed to the nîr*.

¹⁹ See Gesenius-Buhl: *Handwörterbuch über das A.T.*, 1910: "Die Vorrichtung, durch die die Fäden des Aufzuges gehoben und gesenkt wurden"; and so in the dictionary of Brown, Driver and Briggs: "The system of heddles or "apparatus [of small cords with loops or eyes] by which the threads of the warp are raised and lowered to make an opening for the passing of the woof"; and so rightly Y. Gur, in his *Hebrew Dictionary s.v.* נִיר. See also: A. S. Hershberg: *The Cultural Life in Israel at the Times of the Mishna and Talmud* (Hebrew), Warsaw, 1924, p. 148.

²⁰ So most of the Jewish commentators (and Ben-Yehuda *s.v.* נִיר) on Mishna, Shabbath, 13, 2: העושה שתי בתי גירן בגירן which is translated by Danby: ". . . that makes two loops to the heddles . . ." The בתי גירן are most probably the loops (so, Kennedy, *op. cit. infra* n. 32).

²¹ *Inter alia* see G. M. Crowfoot, *op. cit.* (supra n. 13) *PEQ* 1945, p. 45, and in

particular, *idem*, (supra n. 13) *PEQ* 1941, pp. 150–151. To the observations of Mrs. Crowfoot that the Arab weavers still call the heddle as a whole, *nîr*, one should compare the words of the *Qamus*, who defines the نِير : القصب والحياوط اذا اجتمعت : i.e., "The canes and the threads when they are put together" in which, obviously the *heddle* is meant (cf. G. F. Moore, in *PAOS*, 1889, p. CLXXXVI ff.)—as in the similar definition of the نيرة—and not as explained by Lane, *s.v.* "App. cane-roll on which the warp is rolled when put into the loom and from which it is gradually unrolled as the work proceeds." The passage from an unknown poet quoted by Lane suits the *heddle* and not the warp beam: تقسيم أسيتياً لها بتير : i.e., "She divides the warp that she has with a *nîr*."

²² So Rieger, Jastrow and Kennedy (*op. cit. infra* n. 32) as well as Krauss, *op. cit. infra* n. 29.

²³ See *infra* n. 38.

²⁴ . . . ὡς ἀντίον ὑφαινόντων

late Greek lexicographers as the *κανών*²⁵—an explanation accepted by most modern scholars—which is identical with the Heb. קנה (= heddle-rod in the Mishna) and is still in use in that sense among the Arab weavers²⁶. The Vulgate renders the *mānôr* in all the passages as *liciatorium*²⁷ which is the late Latin term for the heddle-rod.²⁸ The Targum uses the word אכסן, the meaning of which is unknown²⁹. The proposed identification of the *mānôr* with the heddle-rod, finds a corroboration in the fact that the heddle-rod is still called by some Arab weavers in Palestine (and particularly among the Beduins) *Minyar*³⁰, which is the closest in form to the *mānôr* amongst the known terms of weaving.

If so, we might ask, why has this apparently obvious identification not been accepted by most of the scholars who dealt with the subject? The reason for that has already been pointed out at the beginning of the discussion, *i.e.* the simile having been understood to refer to the *size* of the javelin—an assumption which is not necessarily the only one according to the Hebrew text—it could not identify *mānôr* with the heddle-rod, which is by no means the thickest rod in the loom (as can be seen in all the figures accompanying the article)³¹.

Dalman, who has observed the usage of the word *minyar*, among the Arabs, for the heddle-rod, was quite naturally tempted to identify it with this rod. Nevertheless, his arguments against such an identification are characteristic of many others, in that it indicates the inner struggle he must have had between his observations and philological deductions on the one hand, and the “obsession” of the allegedly extraordinary thickness of the shaft, on the other:

“Um einen ungewöhnlich dicken Speer anschaulich zu machen, wird er 1 S. 17, 7; 2 S. 21, 19; I Ch. 11, 23; 20, 5; mit einem *menôr*

²⁵ Cf. Pollux, VII 36: “*κανών ἰστοῦ τὸ καλούμενον ἀντίον*”. This identification is now accepted by most scholars (see Blümner, *Technologie und Terminologie der Gewerbe und Künste bei Griechen und Römern*, Leipzig u. Berlin (2nd ed.) 1912, p. 148 ff., and further references there) in preference to the previous identification with the shutter (still to be found in Liddell & Scott's *s.v.* *κανών*).

On the term *κανών* = heddle-rod (originally the Semitic קנה = reed, mentioned several times in the Mishna and Talmud in this sense): cf. most of the authorities mentioned above as well as H. L. Lorimer: *Homer and the Monuments*, London 1950, p. 192.

²⁶ See G. M. Crowfoot, *op. cit.* (supra n. 13) *PEQ*, 1941, p. 150.

²⁷ “Hastile autem hastae ejus erat quasi *liciatorium* textentium” (I Sam. XVII, 7) and similarly the other passages.

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²⁸ Smith, Wayne & Marindin: *A Dictionary of Greek and Roman Antiquities*, London, 1891, p. 766; Kennedy, *op. cit.* (infra n. 32) p. 5284.

²⁹ אכסן דגדאין which is probably to be connected with the Greek *ἄξων*. Cf. Levy: *Chaldäisches Wörterbuch über die Targumim*, Leipzig, 1867, *s.v.* אכסן. Although the term *ἄξων* is otherwise unknown as a technical term of weaving (cf. Dalman, *op. cit.*, supra n. 13, p. 112) it seems to refer to one of the beams (cf. Krauss: *Talmudische Archäologie*, Band 1, Leipzig, 1910, p. 50 and n. 289). If so the Targum is the oldest authority to understand the simile as referring to the *size* of the javelin.

³⁰ Cf. Dalman *op. cit.* (supra n. 13), p. 97; G. M. Crowfoot *op. cit.* (supra n. 13) *PEQ* 1945, p. 45.

³¹ Cf. also supra n. 25.

öregim, also einen Webegerät verglichen. . . . Da mänör mit dem aramäischen und Syrischen nür "Joch" zusammenhängt schiene es möglich, den Jochstab (= the heddle-rod) des Webstuhls dafür einzusetzen, wenn nicht der zusammenhang das stärkste Holz forderte, das Weber anwenden . . . Aber schliesslich konnte jedes starke Querholz als etwas Jochartiges betrachtet werden . . . "32

Having reached the conclusion that the מנור should be identified with the leash/heddle-rod, we have to understand the simile as referring not to the size of the javelin but to its shape or *appearance*. If so, it is worthwhile to add a word or two concerning the shape and character of the heddle-rod.

The most characteristic features of that rod are the *leashes* or *loops* which are tied to it (see fig. 7); so much so, that this rod is called in various languages accordingly: liciatorium, leash-rod, schlingenstab, etc. There are various ways of attaching the leashes or loops to the rod, some of which are described by Roth as follows³³:

"The heddle leashes are either single or continuous. If single, (that is, if every leash is made of a separate piece of filament, spun or not-spun) these leashes are often bunched together . . . or every leash is tied up separately. If continuous (that is, one long filament serves for making all leashes required), then the leashes are either spiral or alternate . . ."

In other words—as can be seen from Figs. 4–7—the leash-rod is wrapped by spiral—or parallel threads by means of which the leashes are attached to the rod.

4. Having established the identification of the מנור and its shape, we can proceed to the final phase of the current study and look for a type of javelin which should fit the following requirements:

- (1) Similarity in shape to the leash-rod.
- (2) Usage by the people of both the Aegæan and the Egyptian spheres.
- (3) Being out of vogue among the Israelites of that period.

In this search, one is immediately reminded of the famous javelin called by the Greeks ἀγκύλη (= leash or loop)³⁴ and by the Romans *am(m)entum*³⁵.

³² *Op. cit.* (supra n. 13) p. 112. And also most of the authorities mentioned above. See for example, in Brown, Driver and Briggs *s.v.* מנור (following G. F. Moore, *op. cit.* supra n. 20) where although the ניר is explained as the heddle (supra n. 20) the מנור is explained as the "beam (prob. round) carrying the heddles (in loom) . . . all simile of thick and heavy shaft of spear."

It may be added here in addition to what has been said above against this identification, that the heddles (or heddle-rods) are sus-

pending from the breast-beam only in the vertical loom and even then not in all types, as can be seen from two vertical looms reproduced in Figs. 4; 6.

Galling who based his discussion also on the assumption that the simile refers to the *thickness* of the spear (*Biblisches Reallexicon*, Tübingen, 1937, p. 538) points out that the loom in question is not the vertical but the horizontal one. Nevertheless he identifies the מנור with the "Tuchbaum." His reconstruction of the horizontal loom (Fig. 2 on

Many studies have been dedicated to this peculiar kind of javelin³⁶, and the following quotations from Gardiner's article³⁷ will give us the necessary data concerning its shape and method of throwing (see Figs. 8-13):

"It was thrown by means of a thong called ἀγκύλη or amentum, fastened near the centre of gravity of the javelin, which was therefore

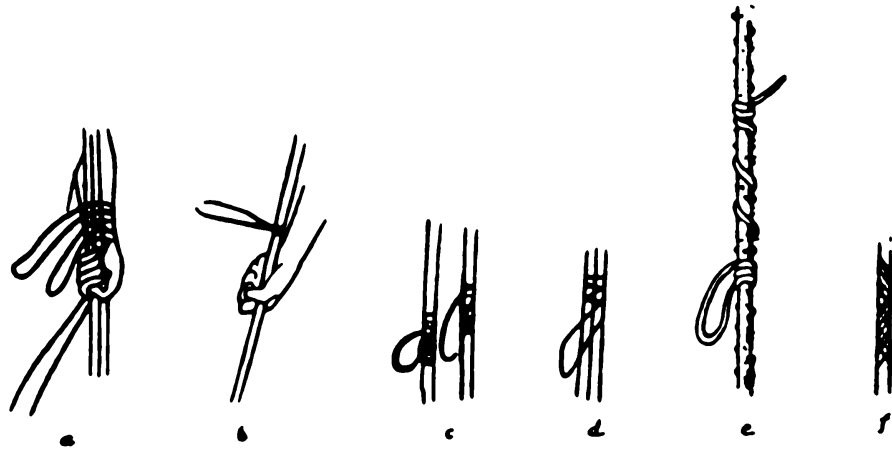


Fig. 8.

called μεσιγκυλον³⁸. The amentum was a leathern thong a foot or eighteen inches in length, if we may judge from the numerous representations of an akontistes holding an amentum loose in one hand and a

p. 537) is not so clear to me: Although he mentions in the description the "Trenn- und Schlingenstab" (= shed and leash rods) what is actually seen in the picture, are two *shed-rods* only. On the other hand, Kennedy's strong arguments in favour of the identification of the מנור with the heddle/leash-rod (*Encyclopaedia Biblica*, London, 1903, s.v. weaving) have not been accepted by the scholars, because his assertion that "the shaft of a good sized loom with a heavy warp must have been considerably thicker than the ordinary light spear-shaft," is indefensible! Even in such a loom the heddle-rod would be less thick than the two beams, which are naturally also thicker than the beams in an ordinary loom.

³³ *Op. cit.* (supra n. 14) pp. 2-3.

³⁴ See *Liddell & Scott s.v.* II: "a loop or noose in a cord. 2. the thong of a javelin, by which it was hurled. Lat. amentum . . . hence the javeline itself."

³⁵ See Lewis & Short s.v.: "a strap or thong esp. upon missile weapons, by means of which they were thrown with greater force."

³⁶ See *inter alia* Daremberg & Saglio:

Dictionnaire des Antiquités Grecques et Romains, Paris, Tome 1, (1878), p. 226_a ff. s.v.: *Amentum*; E. Norman Gardiner: Throwing the Javelin, *The Journal of Hellenic Studies* Vol. XXVII, 1907, pp. 249-273; P. Couissin: *Les Armes Romaines*, Paris 1926, p. 121 ff; George E. Mylonas: The Bronze Statue from Artemision, *AJA*, Vol. XLVIII, 1944, p. 143 ff; H. Bonnet: *Die Waffen des Völker des alten Orients*, Leipzig 1926, p. 105 ff.

³⁷ *Op. cit.* (supra n. 36), p. 251.

³⁸ It is worthwhile perhaps to note here, the similarity between this word and the one in which the מנור in I Sam. XVII, 7, was rendered by the LXX: μέσακλον. The fact that such a word does not occur in any other Greek source, has led some scholars to see it as a Semitic loan-word such as מסכת. (See, Moore *op. cit.* supra n. 20, who sees in it a variant form "of a non-Greek word, in which the Semitic original is discernible" and in the other variants in the MSS. "an etymological attempt to make something Greek out of it.") On the improbability of such a suggestion see, Kennedy, *op. cit.* (supra n. 32).

javelin in the other. It was bound firmly round the shaft of the javelin in such a way as to leave free a loop three or four inches long, in which the thrower inserted his first, or first and middle fingers; the point of

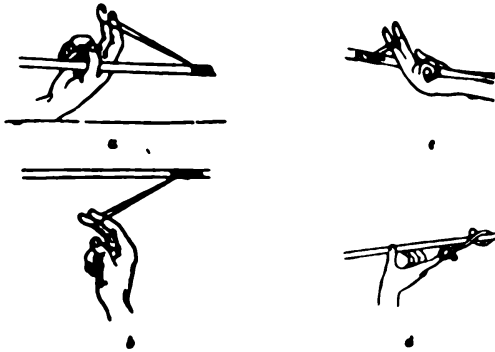


Fig. 9.



Fig. 10.

attachment was the centre of gravity, in the light-headed javelin of the athlete almost in the centre of the shaft, in the more formidable weapon of war or the chase, generally nearer the head.”

The ἀγκύλη or amentum was clearly used by fighting soldiers (see Figs. 10, 11) and in fact “it is obvious that the amentum was not as is some-



Fig. 11.



Fig. 12.

times stated, the invention of the gymnasium, but was adopted by the gymnasium from war and the chase. This has been abundantly proved by the monuments.”³⁹

The μέσακλον is rendered in some of the MSS. by what Kennedy describes as “a set of curious variants” such as: μεσακνον, μεσαυλον as well as αντιον and μεσαντιον (on these see supra n. 25). While the μέσακλον, as stated above, has not been explained until now, the

μέσακμον is explained as the κανών. See *Hesychius*, s.v. μέσακμον = κανών τοῦ ἰστοῦ οἱ δὲ ἀντίον. In the *Suidas* it is explained as: τῷ κανόνι τῷ μέσῳ καλὰ μω τοῦ ἰστοῦ. Cf. Blümner, *op. cit.* (supra n. 25), p. 148, notes 5-6.

³⁹ Gardiner, *op. cit.*, (supra n. 36), p. 252.

The method of throwing the amentum has been subject to considerable debate among the scholars but experiments have proven its importance. To quote Gardiner again⁴⁰:

“The amentum served various purposes. In the first place it enabled the thrower to give a rotary motion to the javelin, which not only helped it to keep its direction, acting on it in the same way as the rifling of a gun on a bullet, but also increased its carry and its penetrating power . . .



Fig. 13.



a



b

Fig. 14.

The carry was further increased by the additional leverage given to the thrower's arm⁴¹. . . . Experiments have amply established the practical use of the amentum with a light javelin. In the experiments made by General Reffye for the Emperor Napoleon, it was found that a javelin which could be thrown only 20 metres by hand could be thrown 80 metres with amentum. According to Jüthner an inexperienced thrower increased his throw from 25 to 65 metres."⁴²

According to Gardiner there is a case for concluding that this weapon has been used already in Homeric times, as suggested by Jüthner⁴³.

When we turn to Egypt we are on much firmer ground, as the *ἀγκύλη* has been depicted on several monuments, the oldest of which is from the XIXth Dynasty (*i.e.* barely 200–300 years before the time of King Saul), as has been shown by Bonnet.⁴⁴

⁴⁰ p. 251 ff.

⁴¹ Cf. also Couissin *op. cit.* (*supra* n. 36), p. 126.

⁴² Gardiner, *op. cit.*, p. 252. On these experiments and others, see also, Couissin, *op. cit.* (*supra* n. 36), p. 127, n. 5.

⁴³ *Op. cit.*, p. 252: “Whether it was used in Homeric times is uncertain . . . The warrior vase from Mycenae, however, clearly shows two types of spear, a long spear carried with clenched fist, and a short spear, raised almost at arms' length behind the head, with the point somewhat downwards,

in a position commonly represented in hunting scenes. The hand is sharply pointed as if the fingers were extended, and a comparison of the way in which the spear is held, with the hold shown in Figs. 6 and 7 (of Gardiner's article, Y.Y.) confirms Jüthner's view that the artist intended to represent a weapon thrown with the amentum.” On the literary sources concerning the antiquity of the amentum, see, Couissin, *op. cit.* (*supra* n. 36), p. 124, n. 1.

⁴⁴ *Op. cit.* (*supra* n. 36), p. 105 ff and fig. 49a.

Curiously enough the only depiction from Palestine, of what appears to be an ἀγκύλη is from Tell-el Fārah, South of Gaza, in Philistia (Fig. 15)⁴⁵.



Fig. 15.

Although this type of weapon seems not to have been in use in Western Asia,⁴⁶ I suspect it is depicted on several of the famous silver-bowls from Cyprus, from about 700–600 B.C. (see Fig. 14).⁴⁷

5. Having analysed each element separately, let us now sum up the conclusions and results of the current survey.

(1) The simile like מנר ארנים refers to the shape and nature of Goliath's javelin and not to its size.

(2) The מנר is most probably the *leash* (or *heddle*)-rod of the loom⁴⁸—the main characteristic features of which are the leashes and loops attached to it.

(3) A javelin very similar in shape to the leash-rod is the ἀγκύλη (μεσάγκυλον) or amentum, which—like the former—was named after its most characteristic features, the loop or leash.

(4) The ἀγκύλη was in use both in the Aegæan and Egyptian spheres of influence and in fact in them alone—a fact which conforms with the Biblical narratives.

(5) The ἀγκύλη was not in use among the Israelites and thus had no specific technical term; the ἀγκύλη must have been considered quite a new invention in the times of the Judges and Saul.

If the above suggestion is accepted, then the passage should be translated as follows: “And the staff of his javelin (was) like the weavers' heddle-rod” (in shape).

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⁴⁵ See K. Galling, *op. cit.* (supra n. 32), p. 355 and there fig. 8 and references.

⁴⁶ Bonnet, *loc. cit.*

⁴⁷ See G. Perrot & Ch. Chipiez: *History of Art in Phoenicia*, London 1885, p. 353, Fig. 272, as well as E. Gjerstad: *Decorated Metal Bowls from Cyprus, Opuscula Archaeologica*, Vol. IV, Lund, 1946, Pl. IX.

⁴⁸ “The Development of the heddle is the most important step in the evolution of the loom” (H. Ling Roth, *op. cit.* supra

n. 11, p. 8). The heddle-rod must have been, therefore, quite known even to those who were not weavers themselves. In fact the heddle or heddle-rod could be defined as the weaver's instrument *par excellence* because in “the method of opening the warp for the intersection of the weft thread . . . consists the whole art and secret of weaving.” (L. Hooper: *Hand-Loom Weaving*, London (reprinted) 1949, p. 81).

The Figures.

Fig. 1. Diagram to illustrate the principles of weaving. (From H. Ling Roth: *Studies in Primitive Looms*, Halifax 1950 (Third ed.). Fig. 1. Courtesy of the Bankfield Museum, Halifax.)

Fig. 2. The Beduin Loom: 1. Breast Beam. 2. Rod Heddle supported on sontes. 3. Shed Rod. 4. Warp Beam. The sword Beater is seen in the shed. (From Grace M. Crowfoot: *Handicrafts in Palestine*, *PEQ* 1944, Fig. 1, p. 123. Courtesy of the Palestine Exploration Quarterly.)

Fig. 3. Shedding Diagram of the Beduin Loom, Nos. 1-4 as in Fig. 2. I. The heddle is fixed and gives the shed. II. The shed Rod is turned on edge to force the Shed Rod threads above the Heddle threads and give the countershed. (From: *idem* Fig. 2, p. 123. Courtesy of the *PEQ*.)

Fig. 4. An Arab Vertical Loom. No. 4 is the Heddle. (From Grace M. Crowfoot: *The Vertical Loom in Palestine and Syria*, *PEQ*, 1941, Pl. XIV, Fig. 1. Courtesy of the *PEQ*.)

Fig. 5. An Egyptian Horizontal Loom. A. Breast Beam. B. Sword Beater. C. Heddle Rod. D. Shed Rod. E. Lease. F. Warp Beam. (From E. Vogt: *Geflechte u-Gewebe der Steinzeit*, Basel 1937. Fig. 151 on p. 101. Courtesy of E. Birkhäuser & Co.)

Fig. 6. Vertical Loom with Weights. B. Heddle Rod. (From *idem*.)

Fig. 7. The Heddle: Rod and Leashes. (From L. Hooper: *Hand-Loom Weaving*, London (Repr. 1949). Fig. 40 on p. 86. Courtesy of I. Pitman & Sons.)

Fig. 8. Various Methods of Attaching the ἀγκύλη or amentum. a. Vase of Hieron. b. B.M. Kylix E 58. c. B.M. Lekytoes E 698. d. B.M. Kylix E 96. e. Alexander Mosaic. f. B. M. Amphora e 316. (From E. Norman Gardiner: *Throwing the Javelin. The Journal of Hellenic Studies*, Vol. XXVII, 1907. Fig. 1, p. 250. Courtesy of *J.H.S.*)

Fig. 9. Methods of throwing the ἀγκύλη. (From: *idem*, Fig. 4, p. 257.)

Fig. 10. Soldiers using the ἀγκύλη, Francois Vase. (From *idem*, Fig. 3, p. 253.)

Fig. 11. A soldier using the ἀγκύλη, Interior of B.-F. Kylix, B.M. e 380. (From *idem*, Fig. 2, p. 252.)

Fig. 12. Athletes examining the ἀγκύλη. R.-F. Psykter of Phintias. (From: *idem*, Fig. 5, p. 259.)

Fig. 13. Horseman throwing the ἀγκύλη. B.-F., Acropolis, Athens. (From: *idem*, Fig. 8, p. 261.)

Fig. 14a. Infantry with ἀγκύλη (?). 14b. Horseman with ἀγκύλη (?). Plate from Dali. (After; Perrot & Chipiez: *History of Art in Phoenicia*, London 1885, Fig. 272, p. 253.)

Fig. 15. A soldier with ἀγκύλη. Tell-el Farah (South of Gaza, Palestine). (After; *Beth Pelet II*, London 1932, Pl. 93; K. Galling: *Biblisches Reallexicon*, Tübingen 1934, Fig. 8 on p. 355.)