

Dieter Rumpel

## The "Harvester" Vase Revised

### 1. History

The Harvester Vase (**Fig. 1**) was found in 1902 in the Minoan villa at Hagia Triada in Crete. Considered Late Minoan I, it is exhibited in the Heraklion Archaeological Museum under Nr. 184.



**Fig.1: Harvester Vase**<sup>1</sup>

The Vase consists of black steatite. It was originally produced in three parts fitted together:

- The neck,
- the upper body with a bas-relief showing a marching troop of men carrying three-pronged forks and following a leader,
- and the lower body which unfortunately got lost. This latter part has been supplemented in the museum stand by black plaster; its original must have borne the lower part of the bas-relief, that is to say: the marching ground and the legs of the men up to their knees.

There are two main authoritative papers written on this object which are:

- 1903 the original report of the excavators: Luigi Savignoni: Il Vaso di Hagia Triada.<sup>2</sup>
- 1954 half a century later John Forsdyke: The 'Harvester' Vase of Hagia Triada.<sup>3</sup>

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<sup>1</sup> Antonis Vasilakis: Das Archäologische Museum Iraklion, Catalogue

<sup>2</sup> Luigi Savignoni: Il Vaso di Hagia Triada, Monumenti Antichi, Vol. XIII, (1903), pp. 77- 182

<sup>3</sup> John Forsdyke: The 'Harvester' Vase of Hagia Triada, Journal of the Warburg and Courtauld Institutes, Vol. 17, No.1/2(1954) pp.1-9

Actually, even before the original report appeared, this vase was mentioned in a short passage of a comprehensive report on the Greek findings of the recent year written by the director of the British School at Athens:

- 1902 R.C.Bosanquet, N.M. Tod: Archaeology in Greece 1901-1902.<sup>4</sup>

Bosanquet wrote:

"A vase of carved steatite..... Round it runs a low relief representing a joyous procession of peasants, dancing and singing, carrying three-pronged forks on their shoulders. The leader is a conspicuous figure with long hair, in a cuirass of scale armour; the remainder, a score or more in number, wear only the characteristic loin-cloth with a tight belt and a small cap. Midway in the procession is a man beating time with a sistrum for three fellows who march behind him with mouths open as if singing lustily. The group which brings up the rear is carrying a man shoulder-high. The discoverers explain the scene as the return from a successful foray, and the man carried aloft as a prisoner. One is rather tempted, in view of the light equipment of the party, to regard it as a 'harvest-home', and to see in the tridents which they carry the *Θρίνακες* or winnowing-forks which are still called *Θρινάκια* in Crete."

This is the first instance, where the term "**harvest**" appears. Forsdyke in his later report expresses the opinion that Bosanquet had not seen the vase, but according to his refusing the discoverers' interpretation he at least must have had pictures of the specimen.

Savignoni, as asked by the excavator Halbherr, officially publishes the finding. He gives a detailed description of the vase and the bas-relief, accompanied by a very learned interpretation which links the picture to other Minoan findings of the time as well as to Classical Greek literature (which sometimes seems a bit overdone). His researches result in interpreting the tridents as weapons and the whole group as soldiers returning from a successful operation.

From his 1954 standpoint Forsdyke sums up the history of vase-interpretations as follows:

" [Savignoni] explained the forked instruments as stabbing weapons on the lines of the trident of Roman gladiators, improved by the addition of a hacking blade. This is the extreme of fantasy, but it has been adopted by several of the German commentators. Déchelette, Milani and others thought that the men were on their way to or from a sacrifice, and exploited the long rods as spits for roasting meat. Hammarström, writing in Finland, compared the forks with brooms used in some modern fertility rites for beating fruit trees, and suggested that the blades might be pruning knives. But most scholars have accepted the scene as an agricultural festival at harvest time. H. R. Hall called the instruments flails (with a query), and John Pendlebury winnowing fans: but this last must be a slip of the pen for winnowing forks. In general the prongs and blades have led people to think in terms of scythes and pitchforks, without considering how the composite implement could be used on either purpose."

In the present (ca. 2000 A.D.) catalogue<sup>5</sup> of the Heraklion Museum, the vase is described as "Steatite-vase with the image of a procession of agricultural workers (reapers) from the Hagia Triada palace." Thus, the agricultural interpretation being seeded by Bosanquet in 1902, seems to have overgrown all others proposals.

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<sup>4</sup> R.C.Bosanquet, N.M. Tod: Archaeology in Greece 1901-1902, Journal of Hellenic Studies., XXII, (1902) pp. 378 - 394

<sup>5</sup> Antonis Vasilakis: Das Archäologische Museum Iraklion, Catalogue

## 2. The Procession Bas-Relief

**Fig. 2**<sup>6</sup> shows a rectified version of the bas-relief band encircling the vase. First is the leader of the group wearing a cloak-like garment and shouldering a long staff, crooked at one end and tapered at the other. He is followed by 21 men marching in step generally two by two, wearing uniformly the traditional Minoan kilt with phallic pouch, a flat cap, and carrying on their left shoulder long three-pronged instruments with pointed ends. The orderly march is broken at two places:

- at about half of its length by a group of four singers or shouters, the boss of whom swings a sistrum,
- after about three quarters of the procession by a man, who stumbled or is on his knees and grips for the waist of the man before him, thus impeding the march and causing the latter man to look back.

Generally one finds that the first half of the procession is clearly ordered and spaced and the three-prongs can be coordinated to their bearers. After the singers' group the march gets denser and less orderly, and the end of the picture shows a real forest of three-prongs.

As, unfortunately, the lower part (legs and ground) of the march is missing, an early reconstruction of this part was done by Evans and Gilliéron<sup>7</sup>. Quite recently F. Blakolmer<sup>8</sup> gave a comprehensive study of the artistic aspects of the Harvester Vase as regards style and prototypes of comparable works in Minoan art. His study includes a reconstruction, which among others extrapolates the anatomical proportions of the group of singers and demonstrates that the singers are more or less sideward of the procession (see **Fig. 3**). They may consist of spectators or even of a welcome committee for the troop marching in.



**Fig. 3: Singers' group reconstructed by Blakolmer**



**Fig. 2 : Procession of the marching men following a leader**  
after Marinatos/Hirmer, mended

<sup>6</sup> after S.P.Marinatos, M.Hirmer: Kreta, Thera und das mykenische Hellas, Hirmer München 1986, ISBN 37774-4310-7, mended.

<sup>7</sup> Evans, PM II Suppl. Tab. XVII

<sup>8</sup> Blakolmer, Fritz: Die "Schnittervase" von Hagia Triada. Zu Narrativität, Mimik und Prototypen in der Minoischen Bildkunst. Creta Antica 8, 2007

The author asks the reader to focus his attention on two further points:

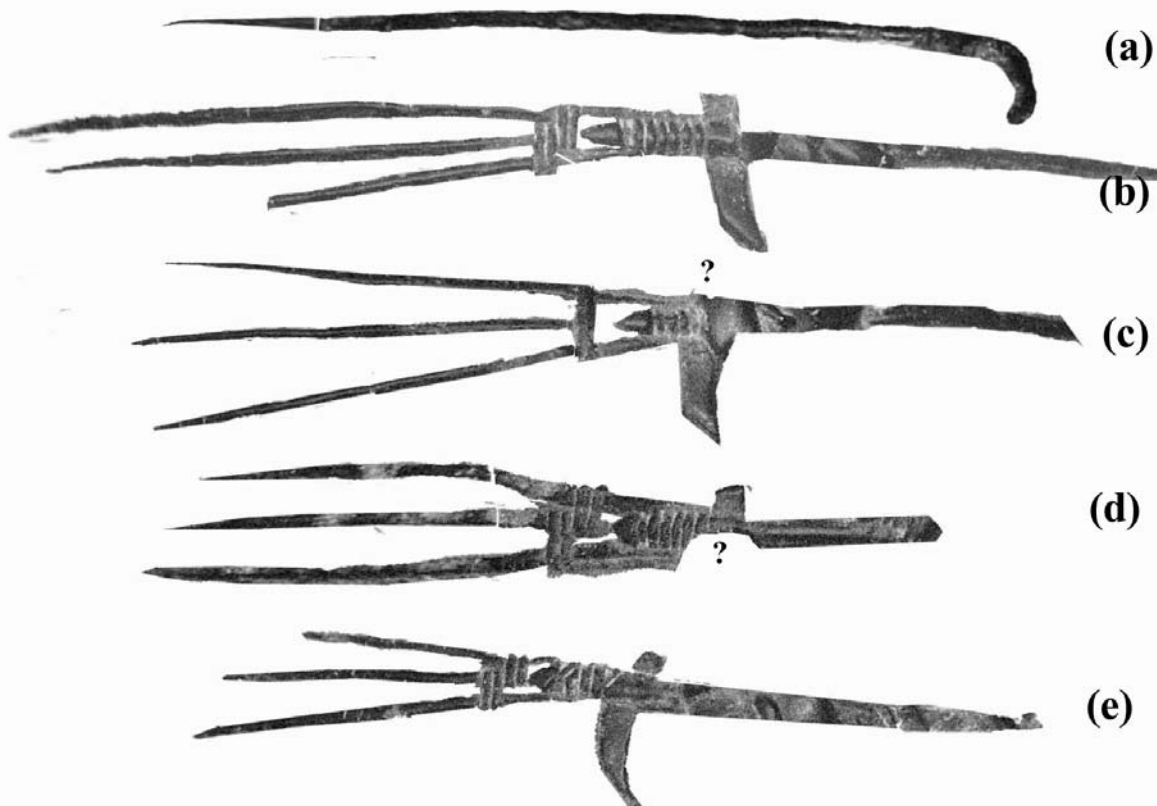
- The men are styled athletic, even muscle-packed in their shoulder region.
- The left thighs of the men, lifted in marching, are structured by muscles. In contrast to this fact, the upper parts of the right legs stomping to ground are not muscularly structured.

These facts will later be detailed and will lead to a more complete interpretation of the object.

### 3. The Three-Pronged Objects

**Fig.4** below presents a collection of the carried implements as could be isolated from the bas-relief and rectified. It clearly shows the combination of a hook or blade with a long fork, both being attached, in a 90° rotation, to a long pole. The whole length of these objects comes up to 2,5 - 3 meters (~3yards), with about half of this length each for the pole and for the prongs. The question marks stand for parts covered in the bas relief.

The pole is ending in a knob; the hook or blade is attached to the pole ca. 30 cm (1 foot) before the knob. Between the hook and the knob extends what, by comparison to the indubitable bindings connecting the median prong to the two outer ones, is also seen as a binding. It cannot be clearly decided from the picture, but practically speaking this binding must care for the connection of the two outer prongs to the pole. With no further interference, these two outer prongs would then lie parallel to the pole and just prolong it. They are spread by distance-pieces, which must lie below and are hidden by the further two bindings ahead..



**Fig. 4: Captain's staff (a) and three-pronged objects as isolated from the bas- relief.**

These two hidden pieces together with the bindings connect and stabilize the median prong. In fact, the double binding connecting the median prong with the outer ones individually is mechanically more stable than an overall one. Also not to be decided from the picture is the

question, whether the median prong is propped up against or even connected to the knob of the pole.

Either way, the construction of the three-prong shown in **Fig.4c**, seemingly without the two bindings of the middle prong, is mechanically unstable, as this prong would sag under its own weight if not connected to the knob. That feature can only be understood as an artist's conception. On the other hand it belongs to the only man marching singly before the troop following behind the singers. Something special?

The problem with the second instrument, the hook or blade is, that it cannot be clearly seen whether the blade is attached via a hole in the pole, or the blade encloses the pole. As the above examples (b), (d) and (e) show a part of the blade appearing at the distant side of the pole, the first alternative seems to be the most probable.

Generally speaking, the stability of the whole object with its bindings seems to be a bit weak. Already Bosanquet mentions "light equipment" as an argument against military, and for agricultural application. Actually, the non intermittent and wearing-out rural use might much faster be detrimental to the above structures than its use in a casual short attack.

#### 4. Agricultural Application of Forks

Surely, the form of the three-pronged forks, immediately creating associations with tools applied in making hay and harvesting grain in pre-machine times, was the main reason to interpret the procession on the bas-relief as an agricultural festivity.

In hay-making, forks of this kind were used for tedding, i.e. spreading the grass for drying it, and later to load the hay on a car. For corn harvest, in similar way forks of this kind were used for the arrangement and transport of grain-bunches before, and of straw after threshing.

For "winnowing" in closer sense, the above objects were absolutely unsuitable, because their prongs were too few and too wide spaced to keep seeds and chaff when throwing them into the air (See **Fig.5** ).



**Fig.5 : Winnowing fork (Egypt, 1c b.C. - 4c A.D.) and winnowing (present time).<sup>9</sup>**

Remains the task of grain-bunch handling. But, in early – and probably also in Minoan – times, grain reaping was done by cutting off just the ear with a sickle and leaving the straw stand on the field to be later eaten immediately by the cattle driven there. This method seems

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<sup>9</sup> <http://www.umich.edu/~kelseydb/Exhibits/Food/text/farm.html>

even to have endured to Roman times, where it was mechanized in form of "Pliny's" or "the Gallic" Reaper<sup>10</sup>. (See Fig. 6)



**Fig.6: Wheat-harvest, Egyptian and Roman.**

It therefore seems that the Minoans had no opportunity to apply their three-pronged objects in grain harvest.

What about hay-making? Hay is presently the main fodder for cattle kept in stables or barns during winter time. Curiously, hay as winter fodder is a relatively recent development. As dealt with by Trier<sup>11</sup>, the main winter staple of cattle food still in mediaeval times was leaves and young branches of trees, which were cut or broken in autumn to be stored. This fact was strengthened by studying word-roots in European languages of Germanic offspring.

Present day animal husbandry on Crete is mainly based on sheep and goats which are kept in transhumance: in summertime on the high mountainous plateaus, in winter on the flatlands about sea-level<sup>12</sup>. At both places the animals are not kept in pens or stables, but are grazing freely, thus no haymaking is necessary<sup>13</sup>. Transhumance can be followed back through historical times, and in some places back to the Neolithic<sup>14</sup>. For Minoan time Crete this condition may or may not have prevailed, as a more forested flora than today is usually assumed. Sheep and especially goats could even have contributed in deforestation of the plateaus by eating young tree-shoots, and could thus have created successively the present conditions. In any case, it is very difficult to deem of a period within this development, where hay-making and hay-forks were required.

With high probability, a Minoan contemporary could not have considered the three-prongs of the "Harvester" Vase type to be agricultural forks.

<sup>10</sup> Chuskin, Peter : History of Gallic Reaper, <http://www.gnrtr.com/tendencies/en/t08.html>

<sup>11</sup> Trier, Jost : Venus, Etymologien um das Futterlaub, Böhlau Verlag Köln Graz, 1963

<sup>12</sup> Ivanovas, Sabine : where Zeus became a man (With cretan shepherds). Efstathiadis, ISBN 960 226 584 1

<sup>13</sup> Sabine Beckmann (Ivanovas) added in an email-note: "Especially in winter [sheep] need not be fed with hay or else, because [Crete] is green in winter (November to April), as e.g. Germany is in May. If dried fodder has to be fed at all, then dried clover imported from Thessaly. This has partially become necessary due to the extreme overgrazing on Crete during the last years, since the subsidies of the European Union induced a large increase of the flocks."

<sup>14</sup> Valde-Nowak, P., Kienlin, T.L. : Neolithische Transhumanz in den Mittelgebirgen, Ein Survey im Schwarzwald. Prähistorische Zeitschrift 2002, Vol 77, Part 1, pp. 29-75



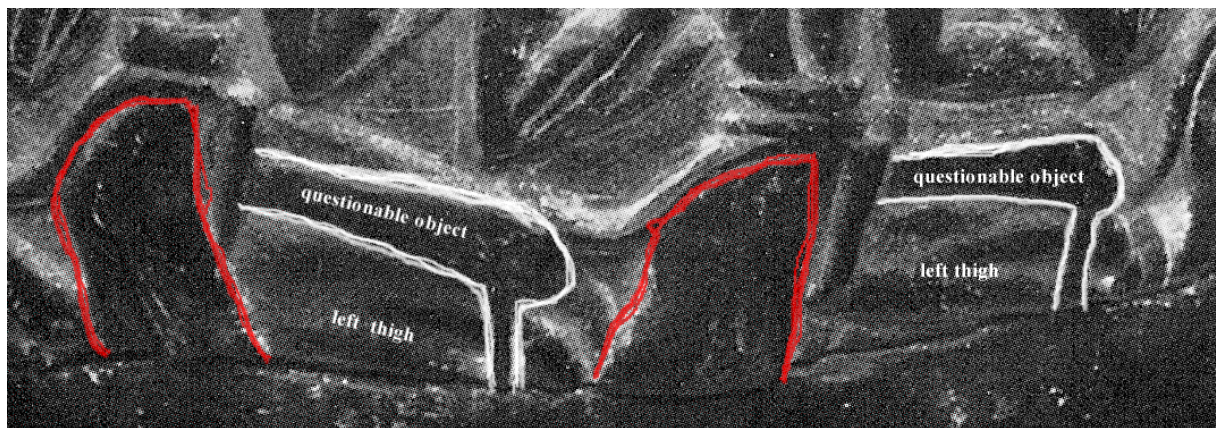
## 5. The Forsdyke Interpretation

Let us first discuss this 1954 interpretation of the Harvester Vase, because it more or less defines the state of the art. Forsdyke starts from two points:

- That the procession is an agricultural festivity and
- that there must be an occasion for the useful combined application of both instruments attached to the pole.

As he reasonably does not find a rustic occasion, where both instruments could be applied without impeding one another, he comes to the result that the pole with hook and without prongs is primary, and it is a hoe used in the field to break earth-clods after the plough and hide the seed from the birds. This hoe is ritually celebrated, and only transiently for this solemn occasion is decorated by willow-twigs bound to it, thus forming the prongs. He then points to the willow-tree as rooted in Minoan religion.

In the same way the leader of the troop as well as the boss of the singers are seen as priests and their gowns as ritual garments. The stooping man is interpreted as a grotesque dancer who verbally abuses the men in order to ritually disturb their solemnity, as elsewhere reported in classical times as part of fertility cults.



**Fig.7: Legs of the marching men**

Forsdyke also regards a detail amplified and marked white in **Fig. 7**. Above the left thigh, which is shown muscular and lifted in marching, there appears something relatively stiff and obviously bound to the leg above the knee. According to his agricultural idea, Forsdyke interprets this as a bag of seed corn commended to the favour of the deity overseeing the festivity.

## 6. The Savignoni Interpretation

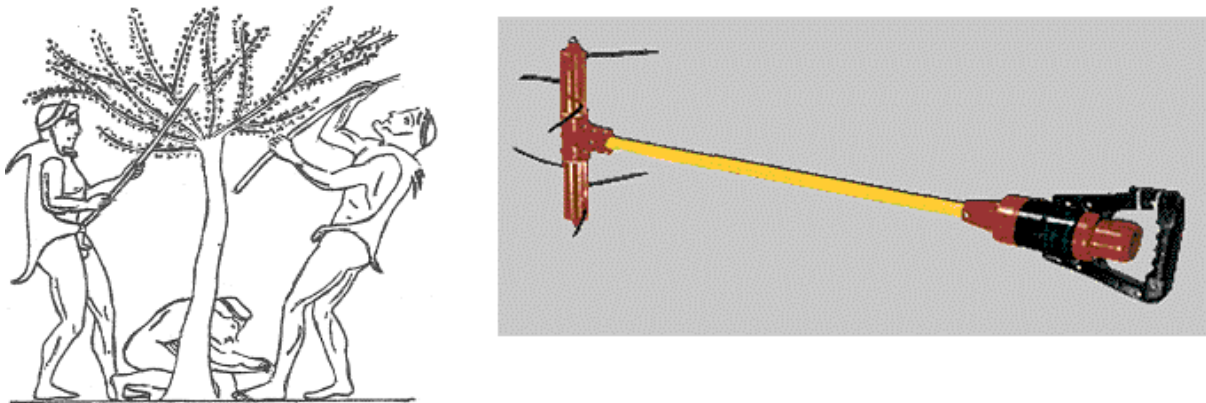
This 1903 paper, the official publication of the finding, immediately starts with a military interpretation of the bas-relief. After a while, the deviating opinion of Bosanquet (published earlier) is mentioned and a small doubt is admitted. Savignoni declares, the decision had to be found by the interpretation of the shouldered implement. In order to do so, he derives in lengthy and learned passages the fact, that three-prongs or tridents as well as blades, scythes and hooks are and were common in military use. At several places he states that their use is especially found in maritime warfare and almost, but not just, anticipates the interpretation given below.

He also regards the "questionable object" shown in Fig.7 above and discusses several interpretations. Curiously, among other alternatives, he also considers it as some leather object designed as a protective shield in combat, but he dismisses this idea, because he finds no similar shield at the right leg. Finally he decides for a bag of victual supplies worn in that way.

As a matter of course, the cloak-object of the of the leader is seen as a cuirass for protection in combat, the stooping man possibly as a recalcitrant prisoner.

## 6. Interpretation as Olive Harvesting Tools

As Sabine Beckman communicates, there are sometimes poles prolonged by soft and elastic, one-, two- or three-prongs used in harvesting olives. They serve to strike the olive-bearing twigs, thus to shake-off the ripening or fully ripe olives and make them drop to cloth spread on the ground beneath the trees. Combining a hook, the pole could have been used to bend and draw branches to the harvesters. The olive harvesting idea for the Harvester Vase is also mentioned in [ancient-greece.org](http://ancient-greece.org)<sup>1</sup>, and by F. Matz<sup>2</sup>, but is not further detailed there. **Fig. 8** shows an olive harvesting scene from a Greek vase compared to a modern motor driven olive harvesting rod, where the elastic extensions (black) of the rotor beat the twigs.



**Fig. 8: Olive harvesting tools**

## 7. Discussion of the Present Interpretations

It is easy to counter the Forsdyke-Interpretation as farfetched until impossible. His primary cult-object, which is the hoe remaining after removal of the "decorating branches", is not applicable for any use in the foreseen agricultural practice, because of the foot-length of the pole standing over the blade. Rural application requires, that the blade should be at the end of the pole. Also Forsdyke saw this problem and ad hoc invented a hoe with a sliding blade: Forward for rural use and backward for ritual celebration. This seems rather farfetched. Also, as he correctly remarks, the hoe-application, in order to withstand the blows when striking, requires that the pole had to pass through a socket in the (metal) hoe and not vice versa. But in this case the blade's projection appearing at the distant side of the pole remains rather unmotivated.

Also unmotivated in ritual celebration is the fact, that the "decorating branches" are stripped of their leaves; that they are of a diameter which should require at least two year old willow

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<sup>1</sup> <http://www.ancient-greece.org/art/minoan-art.html>

<sup>2</sup> Matz, Friedrich: Kreta, Mykene, Troja. Kilper, Stuttgart 1957



twigs that would have side-twigs in their own (which are not seen); that they are tapered and sharply pointed. To care for the first question, Forsdyke concludes that the harvesting ceremony must have been staged in October, when the willows on Crete bear no leaves, but he does not care for the further questions.

Not as farfetched are the arguments of Savignoni. What is missing, is the Forsdyke requirement, that there must be a useful occasion for the **combined** application of both instruments attached to the pole, at practically the same time.

In principle, olive harvesting could exploit such a combination. The difficulties of such use lie in the low mechanical stability of the bindings. They would loosen after a few strokes to the olive branches. Pointed prongs were not necessary. Vice versa, the use of the hook would be impeded by the prongs entangling with the twigs of the olive-tree. Thus, if one elastic stick would not suffice, a few elastic twigs grown fast to their branch, cut to be the pole would serve much better; as well would a separate pole, with only the hook on, be more useful for drawing branches near.

## 9. Revised Interpretation

In fact and very near to the Savignoni-interpretation, a naval military application of the combined hook and trident can be imagined:

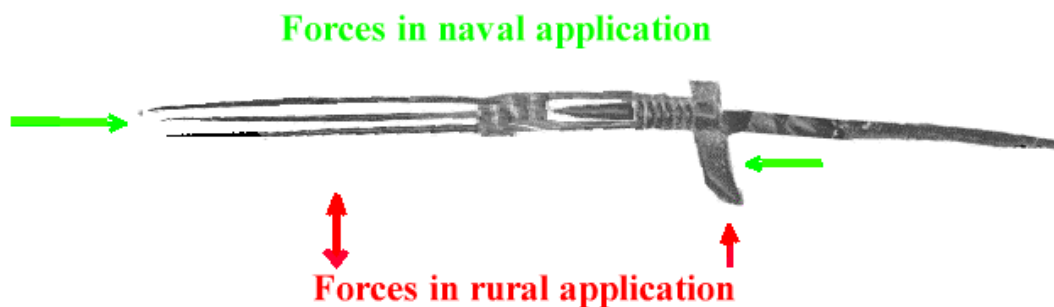
Starting from the idea, that the pirates or enemies as well as the Minoan fleet were equipped with open vessels, combat had to be delivered board to board by stabbing over to the enemy boat to kill or injure the crew there and to keep the men off the gunwale, to which then grapnels were hooked for final boarding (see **Fig.9**).



**Fig. 9 : Board to board fighting in open vessels (Sketch)**

In open boats, there is open space above the gunwale, so the tridents (after scaring away the crew) would not impede fixing the grapnels. On the other hand, arming the grapnels with elastic and pointed prongs, is a good idea to hinder the enemy crew from loosening the grapnels, because they impede access but do not provide a lever to lift them out.

The hooked tridents (or three-pronged grapnels) are exactly designed for this task, as exemplified in **Fig.10**. In rural application the forces would be directed rectangular to the "fork" and – except for the olive harvest - parallel to the "blade"; and these forces would stress the object not just several times, but in continual wearing use. The "fork", and especially its medium prong would be loosened in short time. Also the "blade" used as a hoe would give way after a while if it was inserted into the pole.



**Fig. 10: Direction of forces in the different applications of the combined implement.**

Maritime military use as proposed above would stress the prongs along their axis and the hook rectangular to its stretch. Both are directions in which the construction serves for stability over a certain time. And the time in naval combat is indeed limited. For this purpose prongs of wood, and also a hook made from hard wood fitted transversal into the pole would suffice, even giving the weapon the facility to swim on water if lost out of hands. As well, the combination of grapnel and prongs in maritime use would spare space on board, a consideration not important in landed use.

Most probably the Minoan vessels, when patrolling the Cretan waters, were sailed whenever possible. But in bad winds and in combat they had to be rowed, rowed, rowed. This fact can be made responsible for the muscles, which the artist with pleasure exhibits on the bas-relief in the shoulder region of the soldiers as well as at their lifted left thigh. So one would expect that also at the right leg (see Fig.7, marked red.) a muscular structure would show up. It does not. The easiest explanation for this phenomenon is, that in the bas-relief we do not see the right leg, but some sheet covering it. There is no gap between this sheet and the Minoan kilt. So the most reasonable assumption is that the sheet is worn under the kilt, covering the rear part of the soldier and reappearing as the questionable object at the left leg. Such an object is well known from mining, where it is called "Arschleder" (verbally translated "arse leather", but being a technical term since mediaeval times, it is not considered indecent!). **Fig.11** at left shows the way of wearing an Arschleder bound around the hip, and to the right its application by a mediaeval miner going down to his mining front.

This miner fixes the lower end of the Leather by holding it fast between his legs; but of course, the Minoan marines had to have both hands free in rowing and combat, therefore they fixed their Arschleder by binding its lower extension to their legs above the knees. And why was an Arschleder good for mariners? Well, in rowing, rowing, rowing they had to protect their rear parts against the rough and oftentimes wet ship-benches. The rolling seats applied by modern oarsmen had not yet been invented.



**Fig.11: Wearing and applying an Arschleder** <sup>3</sup>

Following this naval military interpretation, it is not difficult to explain further details. The cloak of the leader remains a cuirass, the uniform cladding and capping of the soldiers is especially useful in order to distinguish own forces in close combat when boarding. (Uniformly cladding rural workers is definitely not so stringent). Whether the armour of the lower legs (κνημίδες) seen by Savignoni at the first soldier is really existent, remains doubtful. In naval combat it had no reasonable importance.

One could speculate, that the number of 21 men plus chief was exactly the crew of one vessel. As rowing requires an equal number of men at both sides of the vessel, one man is reserve or of special service, or one has to count indeed the stumbling man to the crew. Of course, the group of singers and their boss could well be a clerical addition to the military parade. On the other hand consider the muscular outfit of the sistrum-swinging priest (?).

Indeed, the combined grapnel/trident weapon could have been constitutive to the early Minoan naval dominion, comparable to the later invention of the boarding-bridge ("corvus"), employed by the Romans against the Phoenicians<sup>4</sup>, as well as by Pompeius when fighting the pirates and establishing the Roman rule over the Mediterranean.

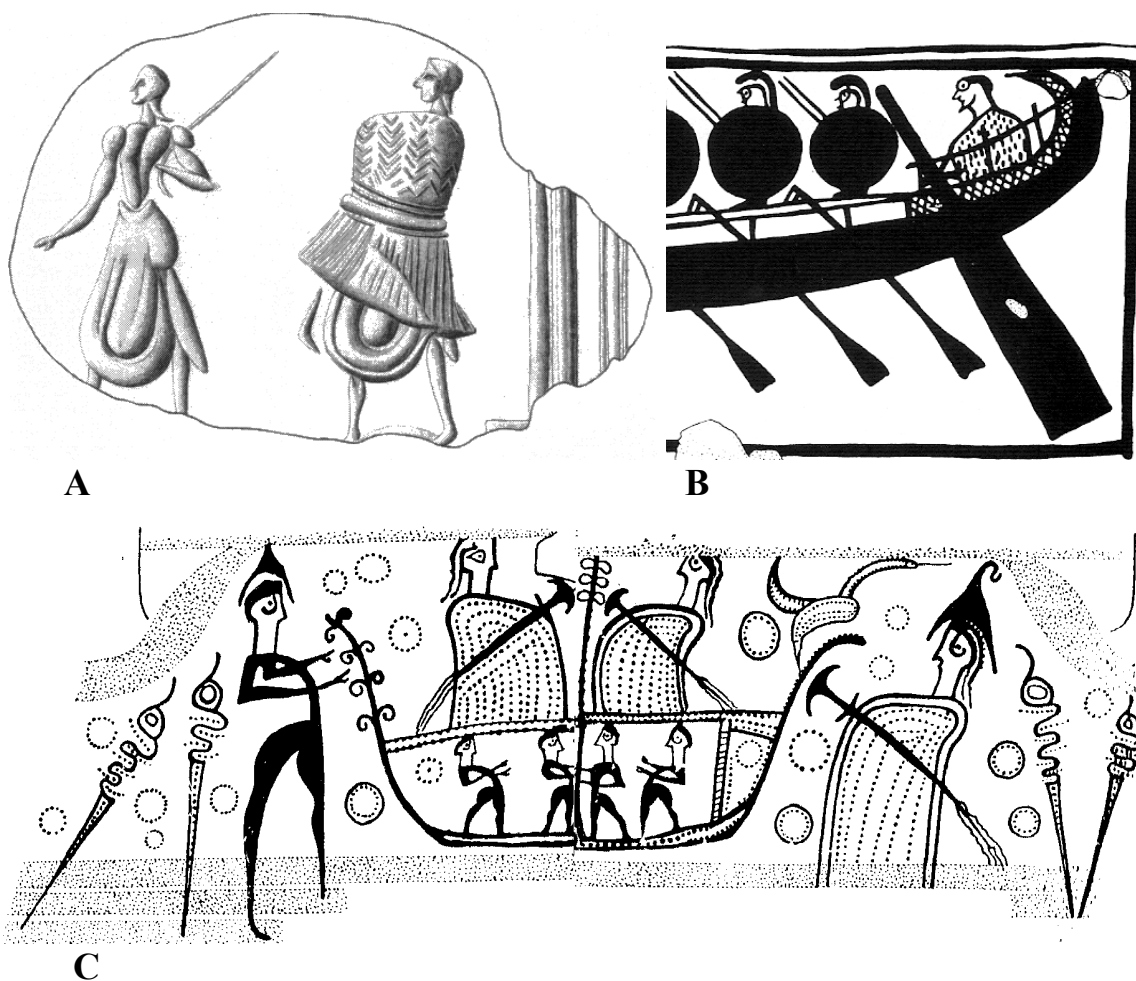
## 10. Parallels

A parallel depiction of a grapnel and/or trident weapon in other contemporary Minoan objects would of course be valuable in deleting the last doubts. But there are neither such applications nor agricultural ones found. As well, F. Blakolmer would better like to see the muscular outfit of the marchers not necessary due to rowing, but as a Minoan pictorial prototype, comparable to the slender waist generally attributed to young people. Unfortunately, the contemporary specimina remain mute or are insufficient to invert the muscular argument; i.e. to define all muscle-men to be marines or at least soldiers.

<sup>3</sup> after Wikipedia

<sup>4</sup> L. Casson: The Ancient Mariners. Princeton University Press, Princeton N.Y., 1959. ISBN 0-691-01477-9

The situation as for the cuirass worn by the chief of the marching troop seems to be better. Blakolmer<sup>5</sup>, and already Savignoni<sup>6</sup> show the scene on a seal given in **Fig. 12 A**. This seal (-impression?) was found at Hagia Triada practically in parallel to the Steatite Vases and is therefore considered contemporary. As the cuirass at the following man seems forward-backward inverted as against the one of the chief on the vase, the author would see here the chief marching in front, followed by a "shield-bearer" (to use a term of knightly times) who had to care for the armature of his lord and to carry it after him.



**Fig. 12: Possible Parallels to the "Cuirass"**

**Fig.12 B and C** are much later and off-site<sup>7</sup>. Fig B is dated 7. ct. B.C. and stems from Sounion. This picture shows a helmsman of a warship clad in something like a cuirass, and at the same time elucidates why he had to be protected in a special way: Due to the operation of the steering rudders he could not be shielded the usual way. As for the "Harvester Vase", such

<sup>5</sup> Blakolmer, s.a., Fig. 8.

<sup>6</sup> Savignoni, s.a., Fig. 9. Here the "captains staff" worn by the first person is not shown.

<sup>7</sup> After Michael Wedde: Towards a Hermeneutics of Aegean Ship Imagery. Bibliopolis 2000, ISBN 3-933925-09-6, mended. Fig 12 C composed from two pieces of the same object.

a situation could well have prevailed also a millennium earlier, and the helmsman being the head of a crew of 20 men could easily be imagined<sup>8</sup>.

Fig C is dated Late Helladic IIIB and stems from Encomi. Three people are wearing a sword and are clad in something what can be considered an armour or a cuirass. Two are opposed on the deck of the ship, as well as the crew in the hulk seems in opposition. A quarrel or mutiny? Interesting is the three-pronged decoration of the swords. As tassels, it should hang down, but it does not. A late remembrance of earlier real three-prongs?

If we took pictures B and C as showing cloak-type cuirasses like the one depicted on the Harvester Vase, we had indeed found a connection to military and marine application.

As for the *Arschleder*, Lionel Casson<sup>9</sup> reports a similar leather application already by the rowers of Pharaoh Sahure's ships (ca. 2450 B.C.) . Neuburger<sup>10</sup> mentions, that the rowing-benches of the later Greek warships were upholstered with sheep-skin.

## 11. Conclusion

An agricultural interpretation of the procession on the "Harvester" Vase – be it for grain or olive harvesting or haymaking – can practically not be maintained. Therefore the original interpretation of Savignoni, who considers the scene as a return from a military - possibly maritime - successful foray, has the highest probability by far. Assuming the special conditions of a board-to-board-fighting between open vessels, even the Forsdyke demand, that there must be a useful combined application for the combined trident/hook-device, can be fulfilled. Blakolmer's anatomically correct reconstruction of the singers' group adds another aspect: We should see a troop of marines – possibly the crew of one boat – marching in and being formally welcomed home after a successful operation.

## 12. Acknowledgement

The author is indebted to S. Beckman, P. Militello and especially F. Blakolmer for the provision of documents and friendly advice.

## 13. P.S.

Despite of being obsolete in to-day's underground traffic, the *Arschleder* has found cult status in mining and it is still worn at festive parades of miners (same way after 3500 years!). There is even a "Rite of Passage" from apprentice to fellow miner called the "*Arschleder-Hop*".

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<sup>8</sup> As not uncommon in later and bigger Greek warships. See L. Casson: *Ships and Seafaring in ancient times*, British Museum Press 1994, p. 67

<sup>9</sup> L. Casson, s.a. 18 writes: "Oarsmen are always pictured with a special type of loincloth, one made of a netted material with a square patch of solid leather on the seat. This obviously was chafing gear: the rower must have handled his oar somewhat the way they did in the Middle Ages and later, rising to his feet to begin the stroke and dropping back on the seat with the pull; without a sturdy patch on his rear, he would have rubbed through his loincloth in short order."

<sup>10</sup> Neuburger, Dr. Albert: *Die Technik des Altertums*, Zentralantiquariat der DDR, Leipzig 1977, p. 498