

FRÖLICH'S TABLE OF HOMERIC WOUNDS

In 1879 a German surgeon, H. Frölich, wrote a short monograph about medicine on the Homeric battlefield.¹ His views are rarely quoted now, but he constructed a table, reproduced as Table 1 below,² which was intended to summarize all the wounds Homer described in terms of weapon, site of wound, and result (fatal, non-fatal, or uncertain). Modern scholars still reproduce this table or quote figures derived from it.³

There are three reasons for looking at this again. First, a rapid run through the wounds caused by throwing rocks, of which there are relatively few, suggested that Frölich's data may not be entirely correct. Second, he makes a particular point of the fact that wounds from missiles would be expected to be less accurate, and more peripheral, than wounds made by hand-held weapons at close quarters, but he does not distinguish between the throwing-spear (henceforth javelin) and the thrusting-spear (henceforth spear). Third, it provides an opportunity to re-examine how, in the context of fatal and non-fatal wounds, Homer signifies death and survival.

METHODS

In order to explore systematically the language of battle scenes in the *Iliad* I have constructed a searchable database, founded in commercially available software.⁴ It includes as separate entries every sentence or passage that mentions any form of weapon or armour, ranging from single lines to passages of thirty lines or so. They may be descriptive passages, arming scenes, healing scenes, or fights. Each entry contains a list of keywords which include:

the names of any protagonists;

transliterated forms of Greek words with, separately, a translation for

- (1) all verbs which are involved in fighting or wounding, e.g. NUSSO STRIKE PROIEMI THROW;
- (2) all weapons and armour, e.g. DORU SPEAR PHARETRE QUIVER;
- (3) all body parts, e.g. AUCHEN NECK POUS FOOT.
- (4) Additional keywords are used to describe significant results, e.g. HIT MISS WOUND DIED.

¹ H. Frölich, *Die Militärmedizin Homer's* (Stuttgart, 1879). This is a rare book, and may be harder to find because citations are often faulty (e.g. Fröhlich, Militärmedizin, Homers). The British Library shelf reference is 11315.c.35.

I am most grateful to Professor Malcolm Willcock for both corrections and suggestions.

² See Frölich (n. 1), 58.

³ M. D. Grmek, *Diseases in the Ancient Greek World*, trans. M. Muellner and L. Muellner (Baltimore, 1989), 28; B. Hainsworth, *The Iliad: A Commentary*. Volume III: *Books 9–12* (Cambridge, 1993), 253; C. F. Salazar, *The Treatment of War Wounds in Graeco-Roman Antiquity* (Leiden, 2000), 127, 129.

Grmek quotes Frölich's table exactly. Hainsworth adds an extra non-fatal boulder-wound to the head. I cannot find such an episode.

⁴ I have adapted Reference Manager 2.0, designed for recording scientific references and constructing bibliographies therefrom.

TABLE 1. Frölich's table

		Stone	Sword	Spear	Arrow	Total
Head	F	4	8	17	2	31
	NF	0	0	0	0	0
	?	0	0	0	0	0
Neck	F	1	4	8	0	13
	NF	0	0	1	0	1
	?	1	0	0	1	2
Trunk	F	1	4	59	3	67
	NF	1	0	5	3	9
	?	0	0	3	0	3
Arm	F	1	1	0	0	2
	NF	0	0	6	1	7
	?	0	0	1	0	1
Leg	F	1	0	0	0	1
	NF	2	0	3	2	7
	?	0	0	3	0	3
Totals		12	17	106	12	
Grand total			147			

F = fatal, N = non-fatal, ? = uncertain.

The complete database contains about 900 entries and 1800 keywords. Complicated episodes may contain forty or fifty keywords.

Entries are tagged in four groups, according to whether they are descriptive, or involve fighting, healing, or arming; and in two groups, depending whether they are in narrative or direct speech. In the keywords, proper names are tagged as Greek or Trojan; and in the fight scenes, proper names, fight-verbs, weapons, armour, and body parts are tagged depending whether they apply (in the relevant phrase or sentence) to striker or victim.

The list of keywords can be searched either for individual words, or using the Boolean variables AND, NOT, and OR. For example ((SPEAR .NOT. EGCHOS) .NOT. DORU) would produce entries which contained one or more of the rarer words for spear but not the common two.

By recording transliterated Greek words and translations, a simple dictionary is automatically constructed. Reversed, this gives a semantic domain (*Wortfeld*) for each English word, for example ten Greek words for 'spear', seven for 'withdraw' (in the sense of 'extract').

There is a section within each entry for free notes, which I used mainly to record observations from commentators, and these too can be searched for words or phrases, but without logical variables.

Although not designed for the purpose, I have used this database to explore the problems raised by Frölich's table. It is stressed that searches, analyses, and counts set out below refer only to the restricted text as included in the database. On occasions, for

example, in considering the use of *θυμός*, I have searched the entire text using Perseus 2.0.⁵ These full searches will be noted ad loc.

THE LIST OF WOUNDS

A complete data set for a Homeric wound contains:

- (1) the name of the striker,
- (2) the name of the victim,
- (3) the name of the weapon,
- (4) the verb of striking (e.g. βάλλω, τύπτω), which enables us to distinguish between spear and javelin, and
- (5) the site of the wound.

For Frölich, (1) and (2) were unnecessary, and he ignored (4). The question of fatality can only be judged individually.

When the wounds in *Iliad* are so classified,⁶ we obtain lines (a)–(d) in Table 2. In addition, we may record the weapon strikes which were frustrated by armour or shield, and so caused no wounds, in line (e); and killings, often multiple, where the name of striker and of victim or victims is recorded, but little more information, in three lines against (f). The numbers in this last category refer to the number of strikers, often with multiple victims. Thus the total number of strikers under (f) is 50, but the total number of associated victims is 122. This category includes the so-called catalogue killings, that is lists of several named victims killed in rapid succession.

Only categories (a) and (c) would qualify for Frölich's table, which needs both a named weapon and a recorded wound site. They total 139, which compares with Frölich's total of 147. Before asking why this might be, some details and implications of the above classification need to be explored.

TABLE 2. Information for a classification of fights

	(A) Striker named	(B) Victim named	(C) Weapon named	(D) Strike verb	(E) Wound site	(F) Number
(a)	+	+	+	+	+	138
(b)	0	0	0	+	+	1
(c)	+	0	+	+	+	1
(d)	+	+	0	+	+	7
(e)	+	+	+	+	0	34
(f)	+	+	+	+	0	8
	+	+	+	0	0	3
	+	+	0	0	0	39

⁵ Perseus 2.0. Editor-in-chief Gregory Crane (Yale University Press, 1996). I use the AppleMac CD. It is an order of magnitude faster than the program presently available on the Internet.

⁶ Data sheets with full references for individual episodes in all categories were submitted with the manuscript, and can be requested from the author.

Line (a). This main group contains all the standard information. There are 133 attackers and victims, but in six cases there are two wounds. For example, at 4.527 Thoas hits Peirous with a javelin cast in the chest and then kills him with a sword thrust to the belly.⁷ In one case at 20.457–9 the second and fatal hit, with a sword, has no wound site, and is classified with (f). Thus the total number of wounds in this category is $133 + 5 = 138$. It is from these data that any conclusions about fatality relative to weapon type or wound site should be drawn.

I have included the wounds inflicted by Diomedes on Aphrodite and Ares (5.330 and 855), and Athene's boulder shot at Ares (21.403), since they fulfil the criteria, and Homer treats the Gods' fighting just as he does the human battle scenes.

Line (b). In a unique passage at 13.210, Idomeneus has met an unspecified fighter wounded (*βάλλω*) in the knee (*ἰγνύη*—a *hapax legomenon* in Homer). The weapon (*ὄξεϊ χαλκῷ*) could be javelin or arrow,⁸ so it cannot be included in Frölich's table.

Line (c). In another single example at 13.394 Antilochus spears in the belly the unnamed charioteer of Asius.

Line (d). Here the weapon is not identified.⁹ The strike-word gives a clue, but no more, since *βάλλω* (Patroclus/Thrasymelus and Meriones/Laogonus) can refer to arrow or javelin and Meriones uses both; *οὐτά(ζ)ω* and *τύπτω* in four examples here are used with both spear and sword elsewhere. *νύσσω* is not used elsewhere for sword wounds, and *οὐτά(ζ)ω* is the commonest strike-verb for spears but an uncommon one for swords (see below), and Frölich may well have assumed that these referred to spear wounds, but I have preferred to classify them separately. One can also try to deduce from other references to the protagonists what the weapon might be. For example since Patroclus nowhere else uses a bow, perhaps the weapon here should be a javelin. Frölich again may have followed this line, but such extrapolation is unwise. Achilles in his *aristeia* uses the following weapons in succession: javelin, spear, spear, javelin, spear, javelin, sword, sword, spear, sword, spear, sword, javelin, spear, sword, sword. We are not told where he gets the javelins from. The corslets of Odysseus, Diomedes, and Menelaus appear, disappear and reappear, as Leaf pointed out.¹⁰ It has often been said that Homer has a theatrical, or perhaps cinematic style, using for example the equivalent of freeze-frame and zoom-in techniques, but he certainly has no interest in what film-makers call continuity.

Line (e). These are episodes where a strike with a weapon lands on armour and does not cause damage to the body. The distinction is not always easy. The rock that Ajax throws at 7.268 hits Hector's shield and knocks him over, but Apollo stands him up, unwounded. At 11.349, Diomedes hits Hector with a javelin on the helmet and he is

⁷ The other five examples are: Peirous/Dioreus 4.517, Antilochus/Mydon 5.580, Peneleus/Ilioneus 14.487, Achilles/Demouchus 20.457, Achilles/Deucalion 20.478.

⁸ *χαλκός* in the *Iliad* refers to weapons: spear ×12, arrow ×2, sword ×1, dagger ×1, knife ×1; and to armour in general ×10, breastplate ×9, helmet ×9, shield ×2. On 16 occasions, as here, one cannot tell which of the above is meant, but it is obviously a weapon here.

⁹ The seven examples are: Antilochus/Thoon 13.545, Menelaus/Thoas 16.311, Meriones/Acamas 16.342, Patroclus/Thrasymelus 16.463, Meriones/Laogonus 16.603, Ajax/Phorcus 17.312, Hector/Leitus 17.601.

¹⁰ W. Leaf, *The Iliad*, 1 Appendix B 576–7, Facsimile of Second Edition [1899] (Amsterdam, 1960).

not wounded (οὐδ' ἵκετο χροῖα καλόν), but he faints. Frölich may have taken these as non-fatal wounds.

Line (f). These refer to brief accounts where the striker kills a named victim with minimal other information, perhaps the weapon and a strike-word. They do not concern us directly in the present discussion but are included to complete the data set, and because the vocabulary might be helpful in considering fatality and will be used below with that purpose. There are ten episodes that list four or more victims, and these have been appropriately called catalogue killings. Patroclus is easily the champion catalogue killer, with two sets of nine named victims, interesting in view of his additional thrice nine unnamed victims at 16.785

Columns (C) and (D). The Weapons and the Strike-words. I follow the principle laid down by Aristarchus that the use of βάλλω as a strike-word indicates a hit from a missile.¹¹ If we take the 139 episodes in lines (a) and (c) and record the strike-words, we find:

Eleven arrow wounds, ten with βάλλω, and an exception, ἐμπίπτω, at 4.134.

Fifty-four javelin wounds, fifty-three with βάλλω and a single strange variation at 5.290 where Diomedes throws (προΐημι) the javelin and Athene directs (ιθύνω) it to a particularly unpleasant target on Pandarus.

Eleven boulder wounds, all with βάλλω.

Forty-five spear wounds: twenty-two with οἰτά(ζ)ω, twelve with νύσσω, five with (ἐμ)πήγνυμι, two with τύπτω, and one each for ὀρέγομαι, πλήσσω, πείρω, and ἐλαύνω.

Eighteen sword wounds: eight with ἐλαύνω, three each for πλήσσω and τύπτω, two for θείνω, and one each for κόπτω and οὐτάζω.

Column (E). The Wound site. Frölich classifies these as: head, neck, trunk, arm, leg. It is not clear what he does with shoulder and hip wounds, whether he puts them with the trunk or the limb. There is no right or wrong here, but I have preferred to take them as limb wounds, since they have in common that they are unlikely to reach viscera, which trunk wounds more likely will. There are still disputable points, which I have classified as follows:

the groin (βουβών) at 4.492 as part of the trunk,

the collar-bone (κλήις) at 5.579 and 8.325 as part of the neck,

ὑπ' ἀσπίδος at 11.259 as a belly wound,

the buttock (γλουτός) at 5.66 and 13.651 as trunk wounds (the weapon goes through the pelvis),

the wound at 15.541–2 as a trunk wound, since although it strikes the shoulder (ὤμος), it goes through the chest (στέρνον), and

¹¹ Aristarchus' rule. Examples of exceptions are the use of τύπτω at *Il.* 13.573 and 13.782, and οὐτάζω at 16.467. (Here Sarpedon aimed at Patroclus, but hit [οὔτασεν] the horse Pedasus. Episodes in Homer where the assailant aims at one enemy and hits another, or something else, invariably refer to missiles. Indeed such a miss-hit with a spear thrust would be unpardonably clumsy.) At *Il.* 14.28, Agamemnon, Odysseus, and Diomedes are described as ὅσοι βεβλήγατο. Diomedes was hit by an arrow, but the first two were stabbed. The reverse case occurs at *Il.* 14.379, where the same three are described as οὐταμένοι. Further possible exceptions for βάλλω occur at *Il.* 11.144, 11.321, 11.389, 16.793, and 23.384.

Aeneas's hip wound at 5.307 as a leg wound despite the fact that the fractured acetabulum is part of the pelvis.

After these preliminaries, we can consider with Frölich whether the 139 episodes in (a) and (c) of the table led to death, survival, or an indeterminate result. This is a linguistic, not a clinical decision.

MORTALITY

Survival

There is a simple group which involves important protagonists who reappear later in the plot. These are mainly peripheral wounds which are inflicted on Menelaus, Diomedes (twice), Aeneas, Sarpedon, Hector (twice), Teucer, Agamemnon, Odysseus, Machaon, Glaucus, and Achilles.

Double woundings require separate consideration. At Patroclus' death, where he is hit in the back by Euphorbus' javelin, then fatally speared by Hector, I take the first wound as non-fatal. At 4.517 Peirous hits Dioreus on the leg with a rock and then spears him fatally in the belly. I again take the first wound as non-fatal, as with 4.527, when Thoas has a javelin hit on Peirous' chest, then kills him with a sword slash in the belly. Similarly Antilochus' preliminary hit with a rock on Mydon's arm at 5.580 is non-fatal. But at 14.487, Peneleus puts a spear through the skull of Ilioneus and then decapitates him. Either wound would have been fatal and both are so classified. At 20.478 Achilles spears Deucalion in the arm, not fatally, before decapitating him.

The wounds made by Diomedes on Aphrodite and Ares, and by Athena on Ares, are non-fatal because these are immortals.

Occasionally the text provides indirect but suggestive evidence of survival. Hypsenor survives a belly wound from Deiphobus, and is carried away groaning by his friends (13.423).¹² Deiphobus then suffers a spear thrust to the arm from Meriones, and is in turn led away groaning by *his* friends (13.538). Eurypylus, wounded by Paris' arrow in the thigh, withdraws into the crowd (11.581), and so does Helenus, with Menelaus' javelin through his hand (13.593).

Twenty-six wounds are classified as non-fatal by the above criteria.

Perhaps there would be other less obvious reappearances of minor characters, which would show that they had survived an injury. The results of a search on these lines were as follows.

First one must separate Homer's use of the same name for a Greek and a Trojan; Hypsenor, Tlepolemus, Agelaus, Peisandrus, Oinomaus, Helenus, Dolops, Periphetes, Coiranus, Thoas, Orestes, Opheltius, Pedasus, Orsilochus, Autonomus, and Echius.

Then we find that, from Table 2, lines (a)–(c):

¹² στενάχω usually implies a response to general misery, by Agamemnon $\times 2$, Patroclus $\times 1$, Achilles $\times 5$, for example. Four times companions take a warrior from the battlefield *βαρέα στενάχοντα*. Hector at 14.432 undoubtedly survives and so does Teucer at 8.334. He is removed by Mecisteus and Alastor, and so is Hypsenor here, with 8.332–4 = 13.421–3. I have therefore taken him as a survivor, and the same, symmetrically, for his attacker Deiphobus, when he is taken away groaning. But this is controversial. R. Janko (*The Iliad: A Commentary*. Volume IV: Books 13–16 [Cambridge, 1992], 98) thinks that Idomeneus' taunt that he has slain three men, which implies that Hypsenor is dead, is more powerful evidence, and outweighs the recorded groaning, which he takes to be a slip of the poet. He adds that γούνατ' ἔλυσεν elsewhere implies death, which it does.

- (1) Mydon is spectacularly killed by Antilochus at 5.580, but another Mydon falls to Achilles at 21.209.
- (2) Amphius son of Selagus, is killed by Ajax at 5.611. Another Amphius is killed by Diomedes at 11.328 (CK);¹³ but that was Amphius son of Merops (2.830).
- (3) Ajax at 6.5 kills Acamas the Thracian with a javelin shot through the skull. An Acamas reappears at 14.476 (CK) to spear Promachus the Boeotian, and is finally felled by Meriones at 16.342. This must have been Acamas son of Antenor (12.100).
- (4) An Adrestus is speared by Agamemnon at 6.63, killed and stripped by Diomedes at 11.328 (CK), and killed by Patroclus at 16.693(CK).
- (5) A Melanippus is killed at 8.274 (CK) by Teucer, by Antilochus at 15.573 and by Patroclus at 16.693 (CK).
- (6) A Peisandrus is killed by Agamemnon with a javelin to the chest at 11.122, and then spectacularly by Menelaus at 13.610, one of the famous episodes where a sword shatters the skull and the eyes drop out.
- (7) Eurypylus kills Apisaon with a javelin in the belly at 11.577: an Apisaon with a different patronymic receives an identical fate at the hands of Lycomedes at 17.346.
- (8) Idomeneus spears Erumas in the head at 16.345, but less than 100 lines later an Erumas is killed by Patroclus at 16.415.
- (9) A Schedius (the first Greek victim in this list so far) is killed by Hector at 15.515, and another by Hector at 17.304.
- (10) In logical sequence, Peneleus the Greek kills Ilioneus at 14.487, Lycon at 16.339, and gets a shoulder wound from Polydamas at 17.600.
- (11) Moulius and Echeclus, Trojans again, are dispatched in one of Patroclus' big catalogues at 16.693 (CK), and a pair with the same names by Achilles at 20.472 and 474.

Moving to the seven pairs of fighters in Table 2(d), we find:

- (12) Thoon, at 13.545, killed with a controversial wound by Antilochus. Warriors with the same name have been killed previously by Diomedes at 5.152 (CK) and by Odysseus at 11.422 (CK).
- (13) Laogonus, struck in the neck by Meriones at 16.603, is killed by Achilles at 20.460 (CK).
- (14) Leitus the Greek, struck in the arm by Hector at 17.601, has previously killed Phylacus at 6.35 (CK).

From the Catalogue killings from Table 2(f), we find the following names recurring:

- (15) Chromius, killed at 5.160, 5.677 and 8.275 (all CK);
- (16) Ormenus, killed at 8.275 and 12.187 (both CK);
- (17) Ophelestes, killed at 8.275 and 21.209 (both CK);
- (18) Pylartes, killed at 11.491 and 16.696 (both CK).

All these characters are Trojan unless stated otherwise above. It is clear that Homer

¹³ CK in this section means that the episode was one of those in lines (f) of Table 2, i.e. a catalogue killing.

recycles names among the minor characters, especially Trojans, without particular regard for consistency. It is another example of his disregard for unimportant matters of continuity in a rapid narrative.

The present search was made within the database, plus observations found in commentaries.¹⁴ If it were extended to other parts of the narrative, especially the Catalogue of Ships, other redundancies would undoubtedly be found, but the present restricted search is sufficient for the purpose of this study, enabling the conclusion that it would be unwise to judge survival on the rare occasions (for example, Laogonus at [13] above) when a minor character reappears alive.

In addition to all these coincidences, the usual example cited for Homer 'nodding' is that of Pylaimenes, killed by Menelaus at 5.576, who apparently reappears mourning the death of his son Harpalion at 13.650. This seems fair—the reappearance is documented and Pylaimenes takes part in the narrative outside the actual fighting.

Death

There are several levels of relevant information in the text. The highest form is when

- (1) Homer tells us that the victim died. He does this with
kill-verbs and die-verbs. These are (ἐξ)εναρίζω, (ἀπο/κατα)κτείνω, ἐναίρω, θείνω, ὄλλυμι, δαΐζω, (κατα)θνήσκω. The verbs δαμά(ζ)ω, αἰρέω, and λαμβάνω have meanings more general than 'kill', and will be further considered below, but the others routinely signify death.¹⁵

Or he uses

death-nouns. These are νεκρός, νέκυσ, and θάνατος.

Or he says that the victim is bound for

Hades (11.263; 14.457) or Erebus (16.327).¹⁶

- (2) The wound is such that death is automatic (decapitation), or so severe that we feel death must have ensued. I have taken into this category:

head wounds where the skull is pierced, the skull bones broken and/or the brain damaged;

belly wounds where the guts are extruded or the liver transfixed;

transfixing wounds of the trunk or neck (that is, the weapon goes right through);

the spear to the heart of Alcahous (13.442).

These are arbitrary decisions not usually informed by clinical evidence. Philip of Macedon's left orbital wound, which damaged the skull, would have been classified as fatal by these criteria, but he survived it.

- (3) I have taken statements that the victim was stripped of weaponry, or would have been if the body had not been protected by his compatriots, as evidence of death.

¹⁴ All commentators include some of the above list, varying with the commentator.

¹⁵ E. Visser, in his comprehensive study of killings which are described in a single line, gives the same list. For a summary of his findings, see 'Formulae or single words? Towards a new theory on Homeric verse-making', *Würzburger Jahrbücher* (1988), 14, 21–37.

¹⁶ In these cases Homer simply says that the dead men went to Hades or Erebus, not their ψυχή or θυμός. See below.

The relevant verbs are: *συλάω*, *συλεύω*, *ἀποδύω*, *περιδύω*, *αἴνυμαι*, *(ἐξ)εναρίζω*,¹⁷ *(ἀφ)αρπάζω*, *ἀφαιρέομαι*.

(4) *ψυχή* and *θυμός*. *ψυχή* occurs 32 times in the *Iliad*, but only eight times in the database. It has no anatomical home within the body (unlike *θυμός*), and when it leaves, it goes out via the mouth (22.467) or via a wound (14.518; 16.505).

ἀνδρὸς δὲ ψυχὴ πάλιν ἐλθεῖν οὔτε λεῖσται
οὔθ' ἐλετή, ἐπεὶ ἄρ κεν ἀμείψεται ἔρκος δδόντων.

'... there is no raiding or winning a man's life back again, when once it has passed the guard of his teeth',¹⁸ says Achilles at 9.408, but the *ψυχή* *can* return, as with Sarpedon at 5.696.

τὸν δ' ἔλιπε ψυχὴ, κατὰ δ' ὀφθαλμῶν κέχυτ' ἀχλὺς·

'his spirit left him and mist spread down over his eyes', but then

αὖτις δ' ἐμπνύνθη, περὶ δὲ πνοιῇ Βορέας
ζώγρει ἐπιπνέουσα κακῶς κεκαφηότα θυμόν.

'he came back to his senses, as the breath of the North wind blowing round him gathered back the life he had breathed out in his pain.' Again with Andromache at 22.466

τὴν δὲ κατ' ὀφθαλμῶν ἐρεβεννὴ νύξ ἐκάλυψεν,
ἦριπε δ' ἐξοπίσω, ἀπὸ δὲ ψυχὴν ἐκάπυσσε.

'Black night covered her eyes, and she swooned backwards, and the spirit breathed out of her.' She too recovers, at 22.475, not her *ψυχή* but her *θυμός*.

Thus the simple departure of the *ψυχή* is not an automatic death marker. If it travels to Hades (1.3; 5.654; 11.445; 16.625; 16.856; 22.362) death is signified. Phrases which imply permanent loss of the *ψυχή* (*ψυχὰς ὀλέσαντες*, 13.763; *ψυχὴν ἀφαιρέομαι*, 22.257 and 24.754), also mean death. But most of these are outside the database, occurring in direct speech, for example as threats, or in narrative separate from the fighting scenes. Of the eight examples relevant to wound fatality, six are already marked for death by one or more of criteria 1–3 above. One of these, the killing of Pandarus by Diomedes (5.296), contains the phrase *λύθη ψυχὴ τε μένος τε*, which occurs after two other fights, Diomedes/Eniopeus at 8.123, and Teucer/Archeptolemus at 8.315. I take it that these two wounds also ended in death.

θυμός is a much commoner word (×434). It is sited in the chest (*ἐνὶ στήθεσσι*, and similar, frequently; *ἐνὶ φρεσὶ*, and similar, five times). When it leaves, it leaves by the mouth (*θυμὸν ἀποπνέων* 4.524, 13.654; *θυμὸν αἰτθων* 16.468, similarly at 20.403).¹⁹ Twice it means the anatomical heart; at 7.216 and 23.370 it beats within the chest (*ἐνὶ στήθεσσι πάτασσαν*) like the more normally anatomical *κραδίη* at 13.282.²⁰ At the other end of the spectrum it seems semantically identical to *ψυχή* when Nestor

¹⁷ This verb is also included under (1) above.

¹⁸ Translations hereafter by Martin Hammond.

¹⁹ But these last two of a horse and a bull respectively.

²⁰ In the only heart wound in the *Iliad*, Alcathous at 13.442, the heart is *κραδίη*.

describes how Peleus, had he seen the disgraceful behaviour of the Greeks, would have wished

θυμὸν ἀπὸ μελέων δῦναι δόμον Ἄϊδος εἶσω.

‘that his spirit should leave his body and sink down into Hades’ (7.131).²¹ Like *ψυχή*, when the *θυμός* leaves, it may return. Menelaus is wounded and shudders (4.152), but when he realizes the wound is not serious

ἄψορρόν οἱ θυμὸς ἐνὶ στήθεσσιν ἀγέρθη.

‘his spirit gathered back again in his breast’, as it does with Andromache at 22.475. Similarly Hector, at 15.240, *ἐσαγείρατο θυμόν*. Again, phrases which imply forcible and permanent removal of the *θυμός* certainly signify death. These are *θυμὸν ὀλλυμι* ×6; *ἀπόλλυμι* ×6; *ἐξαίνυμαι* ×4; *ἐξαιρέομαι* ×9; *ἀφαιρέομαι* ×6; and *ἀπηύρα* ×8. But between them, they add only three further fatalities to the list of wounds. I assume with less conviction that phrases where the *θυμός* leaves the body but there is no preceding black-out or faintness also mean death. These are *ὥς τὸν μὲν λίπε θυμός* at 4.470, similarly at 16.410; *λίπε δ’ ὅστέα θυμός* at 12.386, 16.743, and 20.406; *θυμὸς ὥχετ’ ἀπὸ μελέων* at 13.671 and 16.606. But these examples add only two further deaths.

(5) *αἰρέω*, *δαμάω*, *λαμβάνω*. *αἰρέω* in the sense of kill applies to victims classified as dead by previous criteria, namely Odius at 5.39, Scamandrius at 5.49, and Agelaus at 8.257, as well as Laogonus at 16.603, (though he is in line (d) of Table 2). It seems reasonable, therefore, to take the same meaning of kill for Astynous and Hypeiron at 5.144, Pylaimenes at 5.576, and Eioneus at 7.11, especially since it is frequently used in the catalogue killings categorized in lines (f) of Table 2. *λαμβάνω* applies to Hypsenor at 5.76 and Peisandrus at 11.122, and *δαμάω* to Oileus at 11.93 and Damasus at 12.183. Again these words frequently occur in line (f), but these four victims are already classified as dead by previous criteria.

(6) *λύσε δὲ γυῖα*, *λύντο δὲ γυῖα* and (*ὑπο*) *γούνατ’ ἔλυσεν*. These three versions are used slightly differently. They should mean primarily that the victim loses the power of his limbs and falls, and secondarily may mean that he dies. The first is applied to Ares, felled by Athena; he clearly cannot die. There are four other occurrences within the main list (line (a) Table 2), all of which are previously classified as fatal.²² Two more instances are in fights where the weapon is not specified (line (d) Table 2), and here there is no further clue to whether death occurred or not—but they do not qualify for Frölich’s table.²³ The second version occurs three times, all previously classified as fatal.²⁴ The third version is used in general description of the death of many warriors,²⁵ but also applies to two episodes classified as fatal,²⁶ and to

²¹ I am not sure what a *θυμός* would be doing in Hades. Animals have a *θυμός* (n. 17), and so do birds (23.880), but is there a fauna in the underworld?

²² Agenor/Alphenor 4.467, Agamemnon/Iphidamas 11.238, Agamemnon/Coon 11.256, Patroclus/Pronous 16.399.

²³ Menelaus/Thoas 16.311, Patroclus/Thrasymelus 16.463.

²⁴ Hector/Eioneus 7.11, Glaucus/Iphinous 7.13, Hector/Lycophron 15.430.

²⁵ 5.176, 13.360, 15.290, 16.425, 24.498.

²⁶ Eurypylus/Apisaon 11.577, Lycomedes/Apisaon 17.346.

Hypsenor, hit by Deiphobus' javelin at 13.402, where I have taken the evidence that he was carried off groaning as more convincing evidence of survival.²⁷

We now have 26 survivors and 92 fatalities from the 139 cases in Table 2, lines (a) and (c). It remains to look at the other 21 individually.

(7) It is sobering to find that among them, having escaped what was intended to be a fine-meshed linguistic net, is Mydon the charioteer, the most notorious corpse in the *Iliad*. He is hit on the arm by Antilochus with a rock and drops the reins (5.580). Antilochus then hits him on the head with his sword, and Mydon falls head-first out of the chariot, landing in sand, with his head buried and his body and legs upside down and vertical (apparently) until the horses knock him over. From the scholiast onwards commentators have struggled to explain this, but no one has ever suggested that Mydon survived the experience.²⁸ The only possible verbal marker for death is *πίπτω* in *ἔκπεσε δίφρου*. Of course it has a much wider range of meanings,²⁹ but in the context of battle *πίπτω* and *ἐρείπω* usually mean 'fall and die'. Only Hector and Ares (struck by Athene) fall and get up again, eventually (14.418; 21.403), although Aeneas (5.309) and Teucer (8.329) fall (*ἐρείπω*) to their knees before recovery. Warriors who fall 'like a tree' (or pillar, *στήλη*, or a tower, *πύργος*) are all classified as dead by previous criteria, but Hector falls like a tree and survives. Taking these as exceptions, and noting that one of these words occurs in fifty-one of the ninety-two fatalities previously defined, we can use *πίπτω* or *ἐρείπω* to denote fatality in ten further cases which are not otherwise marked.

We are left with eleven undetermined cases. They are:

Adrestus, 6.63, struck by a spear in the flank by Agamemnon, fell backward (*ἀνετράπετο*) and Agamemnon put his heel on his chest and pulled out the spear. Gorgythion, 8.302, struck in the chest by Teucer's arrow. His head bowed to one side like a poppy.

Thymbraius, 11.320, with Diomedes' javelin in his chest.

Deiopites, 11.420, hit by Odysseus' spear in the shoulder.

Adamas, 13.567, struck in the lower abdomen by Meriones' spear. Homer gives a vivid and unpleasant simile, comparing his writhing around the spear to that of a bull dragged along by herdsmen. But not for long—*οὐ τι μάλα δὴν*—Homer says, and when Meriones pulled out the spear, darkness (*σκότος*) covered his eyes.

Deipyrus, 13.576, struck on the head with the sword of Helenus. His helmet fell off and night (*νύξ*) came down over his eyes.

Satnius, 14.442, struck in the flank by a spear from Oilean Ajax fell backwards (*ἀνετράπετο*),³⁰ a description identical to that of Adrestus, above.

Amphiclus, 16.313, struck in the thigh by Meges. Darkness (*σκότος*) covered his eyes. Commentators have normally assumed death here. The scholiasts worried

²⁷ But see n. 12.

²⁸ For references and a further consideration, see K. B. Saunders, 'A note on the strange death of Mydon', *Symbolae Osloenses* 75 (2000), 24–33.

²⁹ Saunders, 'The wounds in *Iliad* 13–16', CQ 49 (1999), 351.

³⁰ These are the only two occurrences of this word in Homer.

that Homer's victims died suddenly from peripheral wounds, and this is the one usually quoted in that context.

Sthenelaus, 16.586, hit on the neck with a rock by Patroclus. Unidentifiable tendons or sinews were broken, but there is no further information.

Peneleus, 17.597, hit in the shoulder by Polydamas' javelin. It grazed the bone.

Areithous, 20.487, stabbed in the back by Achilles with a spear, and thrust from his chariot.

Nine of these eleven are Trojans. Deipyrus and Peneleus are Greek.

(8) Night or darkness descending over the eyes signifies a black-out. This could be a faint, as for Aeneas with his fearsome hip wound, 5.305, and for Sarpedon's thigh wound, 5.696, (though here it is *ἄχλυσ* which affects him). Hector faints after the boulder wound to his chest (14.439), and so does Andromache when she sees Hector dead. But death is a permanent black-out, and this is presumably the meaning for Echeolus, 4.457; his skull is pierced, his corpse stripped, and he falls like a tower. The same goes for Democoon, 4.503, with a spear transfixing his head, and for Dioreus, 4.526, who breathes out his *θυμός*, with his guts poured out on the ground from a belly wound. Phaestus at 5.43 is definitely killed. There are twelve further examples of black-outs undoubtedly followed by death, sixteen in all. This majority usage suggests that we should take the cases of Adamas, Deipyrus, and Amphiclus in the list above as fatalities. The graphic description of how Adamas, spitted by a spear, ceased writhing 'after a little while' adds to the evidence in that particular case.

We are left with 26 survivors, 105 fatalities, and 8 with undetermined result, and can now reconstruct Frölich's table, but before that we might examine the vocabulary used for Hector.

Hector

In Hector's fight with Ajax in 7, his spear thrust and thrown rock are frustrated by Ajax's shield. Ajax's spear wounds Hector's neck (7.260), and his thrown rock knocks him over. He is *ὑπτίως*, on his back, though neither *πίπτω* nor *ἐρείπω* are used. No other warrior recovers from this position, but Apollo raises him and the heralds stop the fight.

At 11. 349 Diomedes hits Hector on the helmet, and Hector retires, falls, but only to his knees, and loses consciousness.

In 14, Ajax again gets him with a boulder in the chest. Again he falls. He not only falls, but he falls like a tree. No one else recovers from this sort of imagery, but Hector does, in four separately described episodes, lasting into the next book at 15.242. He is unconscious for part of this time.

Hector is marked for death long before he dies, and these markers are spread over several books. It seems likely, therefore, that we are looking at the work of the monumental poet here.

In the climax to the epic, Hector and Achilles both discharge throwing spears without success, but Athene returns Achilles's spear to him. It is clearly the same spear, as 22.276–7 shows. And suddenly it is a thrusting spear, outranging and therefore too

powerful for Hector's sword. I argue that javelins and thrusting spears are radically different weapons.³¹ The strike verb is *ἐλαύνω*, not used of missiles, as LSJ point out,³² so it must be a thrusting-spear rather than a javelin. But even more curiously *ἐλαύνω* is a sword-verb, not a spear-verb. It is used in eight of eighteen sword-wounds, and only here, and at 20.259, where Aeneas' spear fails to pierce Achilles' shield, for a thrusting spear. The spear equally certainly does not cause a sword wound, for those are all slashing wounds,³³ and this is a piercing wound through the neck avoiding the trachea and larynx.³⁴

FRÖLICH'S TABLE RECONSTRUCTED

We can now proceed to set out the findings against Frölich's original table, as in Table 3. There are both large and small discrepancies. Probably he took shoulder and hip wounds as belonging to the trunk, which would account, for example, for his finding of no fatal arm wounds from the spear, as opposed to seven in the present analysis. Doubtless he made other assumptions, reasonable but differing from mine, which would account for at least some of the other differences in the data, but we do not know what they might have been.³⁵ In some cases, boulder wounds for example, I think he just miscounted.

³¹ See my appendix to W.-H. Friedrich, *Wounding and Death in the Iliad* (Göttingen, 1956), trans. G. Wright and P. V. Jones (London, 2003), 131–67.

[The javelin and thrusting-spear] are radically different weapons, as a simple examination of the relevant mechanics will show. With the thrusting spear, the wound is created by direct transmission of force through the spear shaft to the victim. The only mandatory design feature is that the shaft must be rigid. The shape and weight of the spear head is pretty much optional, and the length and weight of the weapon can be suited to the size and strength of the wielder. Thus ancient heroes with superhuman strength may reasonably have outsize thrusting spears, e.g. the great ash spear of Pelion. Throwing such a weapon is another matter. To take a simple practical line which may give the reader a feel for the problem, the nearest modern equivalent of the thrusting spear is the pitch-fork. Mine is just under six feet in length and weighs 4.5 lb (2 kg), most of the weight being in the metal fork. The diameter of the rigid wooden shaft is an inch and a half. Replacement of the fork by a metal spear head of the same weight, and lengthening the shaft by a foot would make a serviceable weapon, similar in length to those on the Warrior Vase. One could throw it the length of a cricket pitch (say 20 yards), but not very fast.

In contrast, the throwing spear penetrates because of its momentum. It has a shaft for two reasons, the first aerodynamic, to ensure that the missile arrives with the sharp end at the front, the second simply to give the warrior a handle to throw it by. The rigidity of the shaft is not of primary importance. Momentum is mass (weight) times velocity. There has to be a trade-off between a too heavy throwing spear, which cannot be thrown fast, and a too light throwing spear, which can be thrown fast but will bounce off on arrival. Light missiles need a high velocity source—the arrow, a bow; the bullet, a gun. But an effective throwing spear will not be an effective thrusting spear, and vice versa.

³² As opposed to *διελαύνω*, which is used frequently with spear wounds (×15) and simply means pierce. It is not used as a primary strike-verb, but as part of the description of the path of the spear.

³³ As one might expect from the Naue Type 2 bronze slashing swords which appeared all round the Eastern Mediterranean in the late Bronze Age.

³⁴ This clearly rules out interpretations such as 'the only throw in the Iliad specifically aimed at any part of the body in particular, perhaps in order to highlight Achilles' outstanding marksmanship' (Salazar [n. 3], 129).

³⁵ If the natures of physicians and surgeons were the same in Frölich's day as they are now, and I suspect they were, he would have been more incisive, but less well-informed, than I. But not necessarily less correct on that account.

TABLE 3. The data set out according to Frölich's selection of weapon and wound site. His figures are in parentheses. Conventions as in Table 1

		Stone		Sword		Spear		Arrow	
Head	F	(4)	4	(8)	5	(17)	16	(2)	1
	NF	(0)	0	(0)	0	(0)	0	(0)	0
	?	(0)	0	(0)	0	(0)	0	(0)	0
Neck	F	(1)	0	(4)	8	(8)	10	(0)	1
	NF	(0)	2	(0)	0	(1)	1	(0)	0
	?	(1)	1	(0)	0	(0)	0	(1)	0
Trunk	F	(1)	0	(4)	3	(59)	43	(3)	2
	NF	(1)	1	(0)	0	(5)	5	(3)	1
	?	(0)	0	(0)	0	(3)	4	(0)	1
Arm	F	(1)	0	(1)	2	(0)	7	(0)	0
	NF	(0)	1	(0)	0	(6)	6	(1)	3
	?	(0)	0	(0)	0	(1)	2	(0)	0
Leg	F	(1)	0	(0)	0	(0)	3	(0)	0
	NF	(2)	2	(0)	0	(3)	2	(2)	2
	?	(0)	0	(0)	0	(3)	0	(0)	0
Totals		(12)	11	(17)	18	(106)	99	(12)	11
Grand total				(147)	139				

In Table 4, Frölich's column of spear wounds is expanded to show the figures for javelin and thrusting-spear separately.

DISCUSSION AND CONCLUSIONS

Any paper which includes numerical conclusions must, in science, and should, in the humanities, be accompanied by details of method which enable the work to be repeated, and if all methods and assumptions are listed and all data recorded the results on repetition should be the same. In the humanities, we generally traffic in ideas, which are not numerically precise or quantifiable. But once numbers are recorded, different standards prevail. These are modern principles of scholarship, not observed even by some scientists in the nineteenth century. The narrow purpose of this paper is to replace an inadequately described, inaccurate, and unverifiable nineteenth-century analysis with a carefully described, accurate (I hope), and verifiable twenty-first century analysis.

At first sight it seems a simple matter to run through Homer's descriptions of wounds and tick them into appropriate boxes according to the site of the wound and whether the victim survived. It turned out to require a large number of fairly arbitrary decisions. Some of these were anatomical, for when the body is divided into segments the junctures of those segments can be classified either way. Technical clinical knowledge is quite useless in deciding whether a wound is fatal or not, since such a decision involves prognosis, and there is insufficient information.³⁶ Decapitation or

³⁶ Prognosis can only be given as a statistical statement of probability, based on a large number

TABLE 4. Frölich's 'spear' category split into javelin and (thrusting) spear. Conventions as Table 1

		Javelin	Spear
Head	F	8	8
	NF	0	0
	?	0	0
Neck	F	5	5
	NF	0	1
	?	0	0
Trunk	F	24	19
	NF	3	2
	?	2	2
Arm	F	6	1
	NF	2	4
	?	1	1
Leg	F	1	2
	NF	2	0
	?	0	0
Totals		54	45

skull fracture with brain spattering are clearly fatal. I added other defined categories of fatal wound which should seem reasonable to the layman.

The main problems are semantic for Homer often does not tell us whether the victim lived or died. I used a reductive method starting with wounds where we know the result was fatal, adding those with wounds so gross that they could be reasonably be assumed to be fatal, and then exploring successively several semantic possibilities to expand the category of fatality.

The remainder were either definitely non-fatal, because Homer says so, or were left as undecided.

The attempt to detect survival by following minor characters through the text was a complete failure. Although recent commentators note in various places that Homer may use the same names two or three times for different characters, maybe both Greek and Trojan, the collection of these redundancies in a single list shows how unconcerned Homer is with continuity at this level, especially for Trojans.

Can useful conclusions be drawn from the reconstructed tables? Not many.

First, all head injuries are fatal. This is not realistic. In any sort of battle soldiers get wounds of the face or scalp which do not break bone or penetrate the brain, from which they recover. Indeed archaeology shows us skulls with penetrating wounds where bone growth around the hole shows us that the victim survived.³⁷ Trepanation was a Bronze Age surgical procedure.

of previous identical or very similar cases where the results are known. Prognosis in an individual case with no previous form can be no more than an educated guess, and is studiously avoided by all competent physicians.

³⁷ R. Arnott, 'Surgical practice in the prehistoric Aegean', *Medizinhistorisches Journal* 32 (1997), 252.

Second, all sword wounds are fatal. This is more interesting in view of Drews's conclusion that it was the introduction of the slashing Naue Type II sword around the eastern Mediterranean which led to the defeat of the chariot armies which controlled the Near East and was thus an important factor in the so-called catastrophe at the end of the Bronze Age. But there are several other theories, which he lists and discusses.³⁸

Frölich's idea that the superior accuracy of hand-held weapons is reflected in the fact that peripheral wounds are caused mostly by missiles is disproved by Table 4. There are ninety-nine javelin and spear wounds, a sample big enough to support his theory, if true. But inspection is all that is needed to see that there is no significant difference in the frequency distribution of javelin and spear wounds in respect of central versus peripheral hits.

Peripheral wounds, naturally, cause fewer fatalities than central ones. But of the fifteen wounds of arm or leg³⁹ that are definitely non-fatal, ten affect major characters whose survival is essential to the plot. Homer cannot have his heroes avoid all harm; that would be unrealistic and unheroic. But he cannot have them disabled for the duration of the epic; that would interfere with the plot. So they suffer minor injuries, which recover, or more serious ones, which are healed by divine interference. In these circumstances, to calculate an overall mortality rate, as Frölich did, is a pointless exercise. It is determined by literary requirements, not battlefield realism.

The analysis of spear wounds which separated javelin from throwing-spear turned up surprising anomalies in the description of the spear wound that killed Hector. Perhaps this may be accounted for by the special nature of the great Pelian ash spear of Achilles, and the special powers of the hero. The weapon is identified by the adjective Pelian and a specific word for ashen, *μελίη*, separately or in combination.⁴⁰

We meet this first at 16.143, where Patroclus, taking the armour of Achilles, could not take his great spear, for Achilles alone could wield it. He took two javelins instead. Next, at 19.390 Achilles arms and of course takes up his own spear. In his long *aristeia* he uses it twice. First against Aeneas (20.277) he undoubtedly throws it and it damages and ricochets off the shield of Aeneas and sticks in the ground. Later Poseidon returns it to Achilles (20.322).⁴¹ Second he throws it at Asteropaius (21.162,169), but misses and the spear sticks in the bank, so deeply that Asteropaius cannot get it out (21.174). In the rest of his *aristeia*, Achilles throws four times and thrusts six times, but the great ash spear is not mentioned elsewhere. It is odd that both times it is specified, the stroke is unsuccessful.

At 22.133 as the climax of the final duel is introduced, Hector flees at the sight of Achilles, who is brandishing his great Pelian ash spear. At 22.225, Achilles obeys Athene and stands leaning on the ash spear, and finally at 22.328 it is the ash spear that fatally pierces Hector's neck, and perhaps significantly Homer uses an unusual strike-word for this special wound. Here, and also when Aeneas drives his spear into Achilles' shield (20.259), he uses *ἐλαύνω*, a word that is used elsewhere of wounding blows with swords (in 8 of 18 such wounds), the axe of Peisandrus (13.613) and the sceptre with which Odysseus beats recalcitrant Greeks (2.199), but nowhere else of a spear.

³⁸ R. Drews, *The End of the Bronze Age* (Princeton, 1993), esp. 192–208 and ch. 14.

³⁹ Excluding Ares and Aphrodite at this point.

⁴⁰ *μείλιος*, in contrast, is not specific to any warrior.

⁴¹ There is a problem here in that Aeneas is left holding the shield (278) and the spear is sticking in the ground (280), yet Poseidon withdraws the spear from the shield (323) before handing it back.

This great weapon is consistently identified by the adjectives *Πηλιάς* and/or *μελίη*. Neither adjective is applied to any other spear of any other warrior. It seems that just as Achilles threw it at Aeneas and Asteropaius, he threw it at Hector, and missed with it for a third time, and Athene gave it back to him as Poseidon had done before. So if we take this line, Homer is consistent, if rather oddly so, and the mechanics of the final duel make sense. This strange and apparently specified account of the Pelian spear might be simply an incidental result of random variation in Homer's poetic vocabulary, or a side-effect of merging different traditions in the development of the epic over centuries. But probably it is purposeful.⁴² The weapon is divine, certainly protected and returned by two gods. It does not register on Aeneas or Asteropaius, for it is reserved for its final and climactic target, the neck of Hector.

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⁴² In Achilles' *aristeia*, and the final contest with Hector, he throws a spear seven times, and thrusts seven times. Three of these efforts are unsuccessful. The spear is specifically identified as the Pelian ash spear on three occasions. These coincide with the three unsuccessful attempts. The probability of this occurring by chance is calculable. Imagine a roulette wheel with fourteen slots, eleven white, three red. Spinning in the wheel are three red balls. What chance is there of all three landing in the three red slots? The probability for the first one is 3/14. One slot is now occupied so the probability for the second red ball is 2/13, and if that lands in a red slot, the probability for the third is 1/12. The combined probability is then the product of the above three fractions, or 6/2184, or less than 1 per cent. But perhaps we should consider only the seven throws, since it is difficult to miss with a thrust (see n. 11). Then the roulette wheel has seven slots, three red and four white, and the relevant calculation is the product of 3/7, 2/6 and 1/5, or 6/210, or less than 5 per cent. Hence purpose is more likely than coincidence.