Science and Medicine in the Homeric Poems: 
Battle Wounds in the *Iliad*

Kenneth Silverman

PhD Student, Department of Classics, University of Florida, Gainesville, FL, United States

Email: knsilvr@gmail.com

Abstract

Homer had a keenness of observation for nature: he described wildlife with attention to the subtle gestures of animal behavior, emotions in terms of physiology, and battle wounds with a level of detail that reveals an interest in human internal anatomy. I have organized this paper into two headings, under which several of Homer’s injury descriptions can be discussed: vascular and neurological. The first section focuses on a possible femoral artery wound, as well as a description of a severed major vessel in the back. The second section includes a brachial plexus injury, a description of the bone and soft tissue of the spinal column, an eye injury, as well as several descriptions of the body’s reaction to pain. Throughout, I consider both the accuracy of these descriptions as well as their sensitivity to detail, with reference to how Homeric commentaries have addressed these passages. I have framed this discussion in the context of how the epic tradition contributed to the history of Greek natural philosophy and medicine.

Keywords: Homer, *Iliad*, Ancient Greece, natural philosophy

Introduction

Before the beginning of Greek philosophy in the early sixth century BC, the epic tradition had already long since been developing an interest in the natural world. Hesiod’s poems, as theological statements, imagined how the universe began and how it obtained its present...
structure. Homer, Hesiod’s predecessor, had a keenness of observation for nature: he described wildlife with attention to the subtle gestures of animal behavior, emotions in terms of physiology, and battle wounds with a level of detail that reveals an interest in human internal anatomy. The next generations of Ionian Greeks after Homer inherited his language, and they included the great Milesian philosophers, who were the first among the Greeks to propose rational explanations of nature. In turn, many modern medical terms still owe their roots to words that first appear in the *Iliad* and *Odyssey*, earning Homer a place in the early history of science and medicine. I have organized this paper into two headings, under which several of Homer’s injury descriptions can be discussed: vascular and neurological. Throughout, I will be considering both the accuracy of these descriptions as well as their sensitivity to detail, with reference to how Homeric commentaries have addressed these passages.

Vascular

The *Iliad* is filled with long passages narrating tumultuous battle scenes: sometimes deaths and injuries appear in quick succession, along with the names of the combatants, while at other times Homer lingers over the details of both the fighting and the identities of the men involved. These passages often take the form of a series of duels. One such example is the sequence of fights to the death in the middle of *Iliad* 16, leading up to the famous scene of Sarpedon being carried off the battlefield by Sleep and Death. Here the two armies confront each other armed with spears, resulting in different kinds of stabbing wounds (16.306-325):

έθη δ’ ἄνήρ ἔλεν ἄνδρα κεδασθέισης ύσμίνης ἡγεμόνων. πρός τότε δὲ Μενοείτου ἄλκημος υἱὸς αὐτίκ’ ἀρα στρεφθέντος Ἀρηλάκκου βάλε μηρόν

2 In addition to Hesiod, Alcman, the seventh century choral poet of Sparta, also wrote cosmogonic poetry (which only survives in a “fragment of a commentary” preserved on papyrus [POxy 2390 = E. Lobel, ed., in *The Oxyrhynchus Papyri* 24,1957, pp.52-55]) and sometimes speaks in what sound like philosophical terms (see: P.E. Easterling and B.M.W. Knox, eds., *The Cambridge History of Classical Literature, Vol. I: Greek Literature* [Cambridge: Cambridge University Press, 1985], 179-180). The evidence from Alcman, perhaps even more so than Hesiod’s poems, suggests how early Greek philosophy may have grown out of poetry.

3 The date of the *Theogony* relative to the Homeric poems is disputable; Martin West argued that it might have been composed earlier than the *Iliad*. This is not the more common scholarly view, however (for a discussion of the chronological evidence, see Richard Janko, *Homer, Hesiod and the Hymns: Diachronic development in epic diction*, [Cambridge: Cambridge University Press, 1982], 94-98). Some ancient writers believed Homer and Hesiod to have been contemporaries, and to have competed with each other at a festival on Delos (according to a Hesiodic fragment, fr. 357 M-W) and/or at a contest in Chalcis on Euboea (as represented in the *Contest of Homer and Hesiod*, composed in the second century AD from earlier sources); see: M.L. West, “*Certamen Homeri et Hesiodi,*” *The Oxford Classical Dictionary, Third Edition* (Oxford, U.K.: Oxford University Press, 1996).

Over the last two centuries of Homeric scholarship, philologists have debated the extent to which the Homeric poems were composed by multiple authors over a long period of time, during both the early oral stage and the era in which the texts were in the hands of rhapsodic colleges that performed them. For simplicity’s sake, in this article I use the name “Homer” to refer to the poet(s) of the *Iliad* and the *Odyssey*, while recognizing that this attribution remains a subject of some controversy.

stabbed him in the thigh with a sharp spear, and he drove the bronze point straight through it: the spearhead broke the bone, and Areilycus fell down face-first on the ground.

Then the warrior Menelaus wounded Thoas in the chest, in the spot where his skin lay bare beside where he was holding his shield, and Menelaus slackened his joints.

And Phyleides [Meges], when he’d spotted Amphiklos running towards him, was the first to strike, reaching out his spear towards the upper-part of Amphiklos’ leg, where the thickest human muscle lies: and his tendons were completely severed by the point of the spear, and darkness covered his eyes.

And then Nestor’s sons sprang into action: one of them, Antilochus had just wounded Atymnius with a sharp spear, and he drove the bronze spearhead through his side beneath the ribs: and Atymnius fell down before him.

And then Maris darted up to Antilochus for close-range combat with his spear, standing enraged before his brother’s corpse: but his mighty brother Thrasymedes got there first, jabbing out his spear before Maris could land a wound, and he didn’t miss: he got him right in the shoulder, and the spear point gashed his upper arm, tearing away the skin from the muscles, and totally crushed the bone. And he fell down with a thud, and darkness covered his eyes.

The duel between the Achaean Meges (“Phyleides”) and the Trojan Amphiklos is especially interesting (lines 313-6), as it describes a specific type of wound and its consequences (unconsciousness and death):

And Phyleides [Meges], when he’d spotted Amphiklos running towards him, was the first to strike, reaching out his spear towards the upper-part of Amphiklos’ leg, where the thickest human muscle lies: and his tendons (νεύρα) were completely severed by the point of the spear, and darkness covered his eyes.
In the usual hoplite armor of the later classical period, the thigh was an exposed area, above the
greaves protecting the shins and knees, but below the belt and flaps of the cuirass. This was an
especially vulnerable spot: when the shield was not there to guard it, the soldier was at risk of a
wound to the femoral artery. Late Bronze Age, Mycenaean-era, suits of armor were similarly
exposed at the thigh, as can be seen in the famous “Warrior Vase” painting from Mycenae (Fig.
1), dating to the Late Helladic IIIB-C period (between 1300 and 1100 BC)5 - the era in which the
Trojan War (or, whatever events inspired the Trojan War legend) would have happened. From
the Mycenaean era down to classical times, soldiers had to be careful to protect the unarmored
thigh.6

Figure 1. Mycenaean “Warrior Vase.” National Archaeological Museum, Athens, catalogue no.
1426 (photo by the author).7

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102-103.
6 I wish to thank Dr. Andrew Nichols (University of Florida, Dept. of Classics), who teaches an undergraduate
course on Ancient Greek History and Archaeology for which I served as a teaching assistant (“The Glory that was
Greece,” Classics 2100, Fall 2017). It was his lecture on hoplite warfare that inspired me to pursue this paper.
Thanks to Dr. Nichols for also discussing this passage with me outside of class.
7 This photograph is printed with the kind permission of the Hellenic Republic Ministry of Culture and Sports.
The duel in *Iliad* 16.313-6, then, is fairly realistic, resulting in a wound from which a victim could bleed out within minutes. K.B. Saunders, however, in his comments on these lines, notes that death from a severed femoral artery would probably not be as sudden as the death of Homer’s Amphiklos—due, among other factors, to the “constriction of muscles within the arterial wall.” In any case, it is not clear that Homer understood the cause of death suggested in this passage, since he does not mention damage to a major blood vessel, but only that Amphiklos’ νεῦρα (*neura*, plural of νεῦρον, *neuron*, “tendon”) were completed severed by the point of the spear. There is, however, another passage in which Homer describes a severed vessel more specifically. In *Iliad* 13.541, Homer uses the word φλέψ, φλεβός (*phleps, phlebos*, source of *phlebitis*, or *phlebotomy*), at the moment where Nestor’s son Antilochus kills the Trojan Thoön.

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9 R. Janko’s commentary makes a similar observation (“death would soon follow the severing of his femoral artery,” Janko, *The Iliad: A Commentary*, 357). Since antiquity, there has been some confusion in the commentaries about whether Amphiklos was hit from the front or behind, but Saunders gives a persuasive reading that Homer means the front of the thigh (which was my original impression of this passage) (Friedrich, *Wounding and Death*, 148-9).

10 Saunders (Friedrich, *Wounding and Death*, 132), interestingly, also notes that a “torn” artery is actually more dangerous than one that is “completely severed,” due to the way these “local protective mechanisms” work.

11 In preparing this paper, I had wondered whether Homer’s use of the word νεῦρα (*neura*) in this passage was meant to describe a vein or artery. There does not seem to be any philological justification for this interpretation, however.
This wounding, again, appears within a series of duels - here, early in the second half of the *Iliad*, when the Trojans have breached the Achaean ships (13.540-55):

Ἀντίλοχος δὲ Θόωνα μεταστρεφθέντα δοκεύσας οὖσαν ἐπαίζεας, ἀπὸ δὲ φλέβα πᾶσαν ἐκερσέν, ἢ τ᾽ ἀνα νότα θέουσα διαμπερές αὐχέν’ ἴκάνει: τὴν ἀπὸ πᾶσαν ἐκερσέν: δ’ ὑπίος ἐν κονίσσῃ κάππεσεν, ἄμωρ χεὶρε φίλοις ἐτάροισι πετάσας. Ἀντίλοχος δ’ ἐπόρουσε, καὶ ἀινύτο τεύχε’ ἀπ’ ὰμων παπταίων: Τρόδες δὲ περισταθὸν ἄλλοθεν ἄλλος οὖσαν σάκος εὐώ παναιόλον, οὐδὲ δύνατό εἰσῳ ἐπιγράψαι τέρενα χρόα νηλεί χαλκῷ Ἀντιλόχου: πέρι γὰρ ρα Ποσειδαίων ἐνοσίγθων Νέστορος υἱὸν ἐρυτο καὶ ἐν πολλοῖσι βέλεσσιν.

And Antilochus, eyeing Thoön as he turned his back, darted forward and wounded him, and he cut the vessel [φλέβα] completely, which runs straight up the back and reaches the neck; and he fell on his back in the dust, spreading out both his hands to his comrades.

Antilochus darted ahead, and stripped the armor from his shoulders, while peering cautiously around: and the Trojans, standing all around him, were stabbing the broad shiny surface of Antilochus’ shield - one from one angle, another from another, but they weren’t able to penetrate through it to scratch Antilochus’ tender skin with pitiless bronze; for earth-shaking Poseidon was there, protecting Nestor’s son from every side, even in the midst of many weapons.

Antilochus, eyeing his victim as he turns his back (μεταστρεφθέντα), darts forward and stabs a vessel, so as to sever it completely. Homer takes a whole line to describe the location of this wound, with a specificity that suggests anatomical knowledge (or, at least, that he has a real anatomical feature in mind): ἢ τ’ ἀνα νότα θέουσα διαμπερές αὐχέν’ ἴκάνει, the φλέβα [phleba] “which runs straight up the back and reaches the neck.” Thoön then falls to the ground, flat on his back, while “stretching out both his hands to his comrades.” Which artery or vein did Homer mean? There is, in fact, no major blood vessel running up the length of the back near the surface (although ancient medical writers believed there was). Commentators since antiquity have identified Thoön’s severed phleps as either the ascending aorta, or as the vena cava, which is how Aristotle interpreted this passage. Yet these major blood vessels are probably too deep to have been “completely severed” by a spear point. On the other hand, there are upper branches of the vascular system shallow enough to be vulnerable to a stabbing wound from behind: for instance, the vertebral arteries in the back of the neck, which connect the subclavian arteries to

13 For a summary of critical discussion of this passage, see Saunders’ comments in Friedrich, *Wounding and Death*, 147-8.
14 M.M. Willcock’s commentary (Willcock, *Iliad XII-XXIV*, 217) notes that “some modern scholars have considered [this phleps] imaginary; others have identified it with the aorta, or the vena cava, or koile phleps, which is supported by the ancient scholia, and by Aristotle, who quotes these lines in *Historia Animalium* III 3.16.” Neither of these vessels, however, runs near enough to the surface to be ‘totally shorn away’ by an attack with a spear from behind [here, Willcock cites Friedrich].” Aristotle’s citation of Homer is an example of how, throughout antiquity, Homer was considered an authority on medical and anatomical description (see J.T. Vallance, “Anatomy and Physiology,” *The Oxford Classical Dictionary*, Third Edition [Oxford, U.K.: Oxford University Press, 1996], section I, ¶ 5).
the basilar artery, which supplies blood to the brain (see Fig. 3). Other commenters on these lines have suggested the “internal jugular” vein in the neck as the location of the wound (and, if so, why not also the carotid artery?). Overall, though, this sort of speculation may be irrelevant. K.B. Saunders draws a simpler solution: Homer did not know this part of human anatomy very well, although his word choice makes it seems as if he does. As Saunders also points out, the fast pace of the narrative (which would have seemed even more fleeting in its original oral performance) has the effect of disguising these inaccuracies, even for informed modern readers who might otherwise have noticed a problem.

![Figure 3. Arteries of the neck.](https://en.wikipedia.org/wiki/Vertebral_artery#/media/File:Vertebral_artery.png)

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17 Saunders’ comments, in Friedrich, *Wounding and Death*, 147-148: “Thompson, following Heyne, favours the only large vein in the neck, that is the internal jugular which runs rather superficially and anteriorly, emerging from behind the medial end of the collar bone and proceeding in a line towards the lobe of the ear. A stab wound through it would cause serious but not torrential bleeding - not a spectacular result.” ... “There is no solution. The description is not realistic. But remarkably few listeners or readers will know that.”

18 Ibid. Also see Saunders’ concluding remarks, in Friedrich, *Wounding and Death*, 161: “Homer had a practical knowledge of anatomy... quite good in the abdomen...and around the hip...but not around the spine...”

19 Ibid., 161-162: “I suggest that the rapidity of his narrative style enables him to operate around the limits of credibility - what Friedrich called pseudo-realism...”

20 This adapted drawing is from the twentieth edition of Gray’s Anatomy of the Human Body (1918), now public domain.

Alternatively, Homer’s *phleps* may have simply been referring to the spinal cord (as R. Janko concludes). If so, this example should alert the reader to the problem of interpreting Homer’s terms anachronistically. The limitations of the Homeric vocabulary for describing internal anatomy reflect a primitive stage of Greek knowledge of the human body (and also that Homer was a poet, and, probably, not a doctor). It may be easy, therefore, to misread some of these words based on how later writers used them as technical terms (a mistake which, perhaps, Aristotle himself made). In addition, Homer’s anatomical language depends on early concepts about how the human body works and what keeps it alive, ideas that predate the medical literature of the Classical and Hellenistic periods. The demise of the Trojan warrior Amphiklos (see pp. 3-5, above) may provide one such example of an archaic medical belief: he dies immediately after his *neura* are severed (*Il. 16.313-16*), as if implying that the broken tendons were themselves the cause of death. There are many comparable passages in the *Iliad* describing the body going slack in death or near-death (*liūse de guia,* “and he slackened his limbs,” a frequent expression) - like a collapsed marionette. Homer’s death scenes also sometimes refer to the *thumos*, the life force that governs the movement of the body, as “abandoning” the limbs and bones. A living organism, then, according to this view, depends on a nexus of parts and fluids, in which the *thumos* (thought of as a kind of “breath” or “spirit”) controls the movement of the limbs, while the sinews would seem to contain this life force within the body. Any mortal blow causes the whole system to collapse and the *thumos* to escape into the open air.

**Neurological**

In ancient language and popular belief, leading up to early modern times, tendons and nerves were confused with each other - both described with the same Greek and Latin word (*neuron / nervus*), and both thought to contain the vigorous tautness that holds a person together.

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22 some nineteenth century Homer scholars thought otherwise: Franz Hermann Frölich was so impressed by Homer’s anatomical descriptions that he thought the poet himself “must have been an army surgeon,” like his character, the master field surgeon Machaon (as Saunders explains, in Friedrich, *Wounding and Death*, 161). Saunders also notes that this view, among other nineteenth century explanations of anatomical details in Homer, “[is] no longer credible at any level.”
23 Ibid., 161: “[Homer] had no idea what the difference was between what we now call tendons, ligaments and nerves, nor of the varieties or functions of the various hollow conduits which conduct fluids around the body. How could he have?”
26 Snell, *The Discovery of the Mind*, 8-16.
27 See, e.g., these example from sixteenth and early seventeenth century poetry:
John Donne (“The Funeral,” lines 9-14):
For if the sinewy thread my brain lets fall
Through every part
Can tie those parts and make me one of all,
These hairs which upward grew, and strength and art
Have from a better brain,
Can better do it;
Shakespeare (*Troilus and Cressida* i.iii.54): Agamemnon, thou great commander, nerves and bone of Greece.
Yet the word *neuron*, meaning “sinew,” was used for centuries before Hellenistic physicians discovered the nervous system and borrowed the term to describe its constituents. Perhaps the earlier concept of *neura* influenced the famous analogy in Plato’s *Phaedo*, in which Simmias and Cebe argue that the soul is akin to the tuning of a lyre, where the proper adjustment of tension in the strings represents good bodily health (from which the soul arises, as a kind of emergent property of the body: the “music” of the lyre, according to the analogy). 28 True nerves themselves, as opposed to tendons, were not described in medical literature until the Hellenistic period. Plato and Aristotle were, apparently, ignorant of them: they seem not even to have known that they existed, let alone how they articulate with the brain and what their function might be. Aristotle thought that the vascular system performs what was later discovered to be the work of the nervous system: i.e., he believed that the bloodstream carries perceptual data (“sensory movements”) from the sensory organs to the heart, which collects them in the lining of its tissue as memory traces. It was not until the dissection studies of Erasistratus (as mentioned in Galen) and Herophilus 29 (early 3rd cent.), that the νεῦρα (true “nerves,” as opposed to tendons) were recognized as the “organs of sensation,” with the brain as the central sensory organ. 30

Even though Homer (along with later philosophers and physicians) did not know about the nervous system, he does describe the consequences of nerve damage with anatomical language. Some passages of the *Iliad* describe the way a soldier’s body reacts to sudden trauma: how limbs go numb and muscles contract, depending on the type of injury. Here, for example, in the duel between Hector and the Achaean archer Teucer (Ajax’s brother) (*Il.* 8.321-329), a blow to the clavicle from a jagged stone projectile causes the marksman’s arm to go numb at the wrist. Homer precisely names the location of the injury and its consequences:

And he [Hector] grabbed a jagged rock with his bare hand, and he headed straight for Teucer, and his heart ordered him to throw. And, look! Teucer had drawn a stinging arrow from his quiver and set it on the bowstring: and Hector, the sun glinting off his helmet, hit Teucer just as he was drawing the bowstring back beside his shoulder: where the collar bone separates the neck from the chest - an especially vulnerable spot - right there he got him with the jagged stone, just as Teucer was about to fire: and he broke his bowstring, and his arm went numb at the wrist, and he sank to his knees, while the bow fell from his hand.

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28 *Phaedo* 85e, ff.
29 “Most famous perhaps, was [Herophilus’] work on the nerves; it seems likely that he was the first to discern them, and perhaps the first to make the distinction between motor and sensory nerves (J.T. Vallance, “Anatomy and Physiology,” section IV, ¶ 1).”
30 Liddell, Scott, and Jones, *A Greek-English Lexicon*, s.v. νεῦρον, IV (“nerves, as organs of sensation, first in Erasistr. ap. Gal.5.602”).

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The stone lands exactly where the “clavicle separates the neck from the chest” (ὁθι κλης ἀπορρέγει αὐγήνα τε στήθος τε), which is, Homer says, an “especially vulnerable spot” (μάλιστα δε κατρίνον ἐστι). Teucer’s bowstring breaks, while he loses feeling in his wrist (νάρκησε, source of “narcotic”), sinks to his knees, and drops his bow. Homer is, in fact, describing a brachial plexus injury, \(^{31}\) in which a blunt trauma to the shoulder can cause numbness and paralysis in the entire arm.\(^{32}\)

Realistic injuries like Teucer’s appear alongside examples that are anatomically less plausible (or, as some commentators are keen to note, impossible). Whereas, in a previous example, Homer may or may not have referred to the spinal cord (phleps), there is another death scene in which the anatomy of the vertebral column is more explicitly described. In the middle of Achilles’ rampage through the Trojan army in \textit{Iliad} \textit{20}, a swift beheading exposes the vertebrae and soft tissue of the spinal column (\textit{ll}. 20.478-483):

\begin{quote}
Δευκαλίωνα δέ ἐπειθ᾽, ἵνα τε ξυνέχουσι τένοντες ἀγκώνος, τῇ τὸν γε φύλης διὰ χειρὸς ἐπειρεὶν σίμην χαλκεὶ: ὃ δὲ μὲν μὲνε χείρα βαρυνθεῖς πρόσθ᾽ ὀρῶν θάνατον: ὃ δέ φασάγων αὐξήνα θείνας τῇ ἐαν τὴν πάλης κάρη βάλε: μυελὸς αὐτὲ σφονδύλιων ἐκπαληθ᾽, ὃ δ᾽ ἐπὶ χθονὶ κεῖτο ταυσθεῖς.
\end{quote}

And then [Achilles went after] Deucalion, and, he pierced his arm with a bronze spearhead, in the spot where the elbow’s tendons meet: and he [Deucalion], now paralyzed in his arm, waited for the killing blow, seeing death before [his very eyes] [lit.: “he awaited Achilles, seeing death before (him)’’]: \textit{and he [Achilles], struck him in the neck with his sword, and sent his head flying far away, together with the helmet: and then, marrow “spurted” [or, “splashed”] out from the vertebrae, and he lay splayed out on the ground.}

Deucalion’s head and helmet fly off together, and, Homer says, “marrow (μυελὸς) spurted/splashed out from the vertebrae (σφονδύλιων).” Commenters have noted that neither the cerebrospinal fluid nor the marrow of an axially sliced vertebra, nor the spinal cord, can “spurt” out.\(^{33}\) The blood, on the other hand, is under tremendous pressure at the neck, so that a beheading (if it happens at the right moment in the cardiac cycle) can send a jet of blood high into the air.\(^{34}\)

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\(^{31}\) Teucer’s BPI could result from “acute posterior displacement of bone shards from the fractured collarbone” (along with the “blunt trauma of the rock” itself), damaging the brachial plexus (Dr. Partin, personal correspondence, April 1 and 5, 2018).

Thanks to Dr. Partin for his helpful comments on this and other topics during the discussion session for this paper at SAHMS 2018, and by e-mail correspondence.

\(^{32}\) cf. Saunders’ notes on a similar wounding, in which a fractured collarbone would have “rendered the ipsilateral arm useless” (from the duel between Hector and Ajax, in \textit{Iliad} \textit{14.409}, ff., discussed in Friedrich, \textit{Wounding and Death}, 153).

\(^{33}\) See Mark W. Edwards (gen. ed. G.S. Kirk), \textit{The Iliad: A Commentary, Books 17-20}. (Cambridge: Cambridge University Press, 1991), 342: “The phenomenon is anatomically impossible.” Saunders’ commentary says that “after decapitation...nothing will happen to the μυελὸς, whether it means the marrow of the vertebrae, which is a spongy substance under no pressure, or the substance of the spinal cord, or cerebrospinal fluid, which surrounds the cord at a pressure of a few centimeters of water (Friedrich, \textit{Wounding and Death}, 149-150).”

\(^{34}\) Ibid. This point inspired an interesting dialogue, during the discussion of this paper at SAHMS 2018. The height of the column of ejected blood would depend on the contractility of the heart at that moment, as well as on the adrenaline level. Normally, systolic blood pressure at the base of the neck with upright posture is 120 mm Hg (= approx. 165 cm H₂O), which equals approximately five and a half feet. A spike in epinephrine (as is likely in Deucalion’s case, as he is being stared down by the fiercest warrior on earth, raising his sword for the killing blow)
Again, considering Homer’s sometimes imprecise use of anatomical terms, perhaps this is the sort of gruesome phenomenon we are supposed to imagine here. Otherwise, the verb used here (ἐκπάλλω), which literally means “shake out,” might not have the connotation of “spurting” or “jetting” that readers have usually attached to it here. μυελός, furthermore, has several uses in classical sources. Homer, elsewhere, uses it for rich and tender bone-marrow, soft enough to be fed to Hector’s baby (ἐπὶ γούνασι πατρός / μυελόν ὁιν ἔδεσκε καὶ οἶδον πίονα δημόν [Il. 22.501]: “on his father’s lap he ate only the marrow and the tenderest mutton [lit., the “rich fat of lambs”]”; in Sophocles, it can mean the brain; and, in the Hippocratic texts, the spinal cord, or fat (specifically, goose-fat, χηνός μ.). Homer had some idea of the soft tissue and fluid around and within the exposed spinal column, and he here uses this image for an especially vivid death scene.

One of the first purposes of Homer’s poems was to entertain, and, to that end, sometimes the action scenes reach an almost cartoonish level of exaggerated violence. The result is an experience similar to that of watching a violent movie, in which the special effects can give most viewers the impression of a realistic injury, while only medical professionals in the audience may be likely to recognize details that are inaccurate or impossible. This kind of “pseudo-realism” (to borrow Friedrich’s term) may be the best way to account for some of the injuries in Homer. K.B. Saunders explains this point in the conclusion to his appendix to Friedrich’s Wounding and Death in the Iliad. The oral poet’s art, in this sense, is comparable to the craft of making a science fiction or hospital-themed TV show, in which the screenwriters and special effects teams use quasi-technical language and imagery. In addition, we should keep in view the original setting for performing Homer’s works: a crowded symposium or banquet, where at least some of the audience were not fully in their senses. Homer might have been amused to learn that, centuries later, scholars (beginning, especially, with the librarians of Alexandria) would devote themselves to poring over every syllable of these poems and to using them as an almost encyclopedic work of reference. Nevertheless, the antiquity of these poems should caution against dismissing any of Homer’s anatomical descriptions as simple narrative devices. The Iliad marks the first time these sorts of detailed anatomical descriptions appear in the classical

would have augmented cardiac contractility and raised the pressure even higher, possibly resulting in an ejection over six feet into the air.

Many thanks to Dr. Partin and Dr. Cooper for their help with these technical details. Dr. Partin also helped with the wording of this footnote.

35 In a personal correspondence (April 1, 2018), Dr. Partin noted that “the vertebral marrow would ooze and flow but is not under pressure.” However, he also noted that “marrow looks and flows like blood; it is not a congealed semisolid substance as envisioned by many.” So far, none of the Homeric commentaries I have consulted suggests that by μυελός Homer meant “blood.” Yet this interpretation would make perfect sense of Homer’s description.

36 R. Fagles’ trans.: “he would eat only the marrow, the richest cuts of lamb”. Robert Fagles and Bernard Knox. The Iliad (New York: Penguin Classics, 1998), 558.

37 See Liddell, Scott, and Jones, A Greek-English Lexicon, s.v. μυελός.

38 Again, cf. Saunders’ concluding remarks, in Friedrich, Wounding and Death, 161-162.

39 Friedrich, Wounding and Death, 34-41, and Saunders’ comments, Ibid., 147-151.

40 See Ibid., 161-162. Saunders parses this problem more carefully: he distinguishes not only between the reactions of ancient readers and modern ones to Homer, but also among physicians of different eras. Ancient doctors and philosophers saw, for instance, no problem with Homer’s description of a major blood vessel running up the length of the back near the surface (see pp. 5-8, above). Saunders’ comments suggest a further question: whether there were any physicians in Homer’s audience, who had a greater knowledge of anatomy than the poet’s. Addressing this question will require another paper, as well as probably an excursus into ancient Egyptian and Mesopotamian medicine. The Greeks of Homer’s time lived among older and more advanced civilizations; the Egyptians had survived the catastrophic end of the Bronze Age with their literacy intact, whereas the “Mycenaens” did not.
literature at all, and the care the poet takes with them reveals a genuine interest in and sensitivity to the structure and function of the human body. The “pseudo-realism” in Homer’s injury descriptions should, therefore, read as the effort of a poet to capture the real world in verse and, at the same time, to make it entertaining.

It is in this context that we should read the death of Peisander in *Iliad* 13.609-619, an example that combines realistic details with unrealistic ones. Here, at the climax of a duel between the Trojan Peisander and Menelaus, Menelaus’ axe comes straight down against the front of Peisander’s helmet: the force of the blow is so great that not only are the bones of the forehead and nose shattered, but (as elsewhere in Homeric battle scenes) the eyes fall out of their sockets and land in the dust beside Peisander’s feet:

> ἐς τάσιν ὡς σφάλματα, ἐπί πεσών τοῦ γέλασε ἰπποδασείης άκρων ὑπὸ λόφον αὐτὸν, ὅ δε προσιόντα μέτωπον μινὸς ὑπὲρ πυμάτης: λάκε δ’ ὀστέα, τῷ δὲ οἱ δάκτυλοι ποσὶν αἰματότενα χαμαι πέσον ἐν κονίδισιν, ἱόνωθι δὲ πεσών: ὅ δε λαξ ἐν στήθεσι βαινὼν τεύχεα τ’ εξενάριξε καὶ εὐχόμενος ἐπος ἡδα;

But he [Peisander] was already celebrating inside, and he thought he was going to win this fight; but then Menelaus, having drawn his silver-studded sword, leapt straight for Peisander: and then he drew from behind his shield a beautiful brazen axe, with a long smooth-sanded olive-wood handle: and they went straight for one another. And now he [Menelaus] swung [the axe] down against the horn of his horse-haired helmet, beneath its crested peak, head-on against his forehead above the bridge of his nose: the bones screeched, and his eyes fell bloody to the ground in the dust beside his feet, and he curled up on the ground. And he [Menelaus] planted his heel on his chest, stripped his armor, and shouted his boast of victory...

M.M. Willcock’s commentary assures that this is “impossible”: “the eyes,” he says, “cannot in fact drop out of the head,” and he uses this passage as an example of one of Homer’s “occasionally impossible or grotesque” wound descriptions (as opposed to the “usually realistic” ones [“or apparently so”]). Saunders’ commentary explains the anatomy in more detail: the eyes are very “firmly tied in,” with all of the surrounding musculature and wiring, including blood vessels and the optic nerves, so that neither a blunt nor penetrating trauma to the forehead or bridge of the nose can force the eyeballs from their sockets.

After the sudden blow to the forehead, Peisander falls to the ground and his body curls up into a fetal position (ἰόνωθι δὲ πεσών). Elsewhere, Homer uses this word (ἰόνωθι, or similar phrases) to describe the body’s response to pain. In *Iliad* 2, Thersites (the most “shameful” of the Greek soldiers) coils up on the ground in humiliation after Odysseus strikes his upper back with a rod (*Il*. 2.266). In *Il*. 13.650-55, where Idomeneus’ lieutenant Meriones shoots Harpalion (son of the Paphlagonian king, a Trojan ally), the arrowhead enters the right buttock, passes through the pelvic bone and tears through the bladder.

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41 The Mycenaean “Warrior Vase” (Fig. 1, above) helps to understand what Homer means by the “horn” (*phalos*) of a helmet, where Menelaus’ axehead landed. Archaeologists and Homerists debate the extent to which the world of Homer’s poems blends memories of the Bronze Age with details from Homer’s own times (the ninth-eighth centuries BC).


43 Friedrich, *Wounding and Death*, 146.

44 As happens elsewhere in the *Iliad* (*Il*. 12.260).
Mērιόνης δ’ ἀπόλτος ἦς χαλκήρε’ ὀψτόν, καὶ ρ’ ἐβαλε γλυτών κάτα δεξιόν: αὐτὰρ ὀψτός ἀντικρύ κατὰ κύστιν ὑπ’ ὀστέων ἔξεπέρησεν. ἐξέμενος δὲ κατ’ αὐθί φιλόν ἐν χερσίν ἐταύρους θυμόν ἀποπνεύον, ὃς τε σκόλης ἐπὶ γαῖῃ κεῖτο ταθεῖς: ἐκ δ’ αἷμα μέλαν ῥέε, δεῦ δε γαῖαν. And Meriones shot him [Harpalion] with a brass-headed arrow as he was running away, and he hit him in the right buttock: and the arrow pierced straight through down the bladder beneath the bone. And he, sitting down right there exhaled his last breath in the arms of his fellow soldiers, like a worm he lay stretched out on the ground: and dark blood flowed out and soaked the dirt.

As he is dying, Homer says, Harpalion “lay like a worm on the ground, once it had been stretched out.” Willcock’s commentary notes that “a worm curls up when hurt, and then (when dead) stretches out.” These sorts of muscle spasms and contractions give Homer’s battle scenes a grisly realism - showing us how the nervous system reacts to different kinds of injuries. Such passages also demonstrate the attention Homer paid to details of the natural world, down to observing the way a worm dies. One of the most painful examples of a realistic death scene has a dying soldier clawing at the ground and squeezing handfuls of dirt. Here, the Trojan Asius, mortally wounded by the Cretan general Idomeneus (13.383-93):

...So he said, and Idomeneus dragged the corpse by the foot through the crushing melee: and Asius ran up trying to protect his fallen comrade, in front of his horses’ hooves: and the horses were snorting down his shoulders, as his charioteer held on to them from above: and he felt the impulse in his heart to shoot Idomeneus: but he [Idomeneus], striking first, stabbed him with a spear in the throat beneath his chin, and he drove the bronze point straight through it. And he fell down, like some great oak tree, or a white poplar, or towering pine, which up in the mountains ship-building men cut down with whetted axes to use for ship beams:

As Idomeneus is attempting to drag a slain Trojan (Othryoneus, one of Cassandra’s suitors) out of the melee, so that he can despoil his armor, Asius tries to run to the aid of his dead

46 Willcock’s comment on these lines (Willcock, Iliad XIII-XIV, 214): “A dreadful description of the dying warrior. Normally Homer avoids reference to pain; those who are hit are portrayed as collapsing and dying instantly.”
companion; Idomeneus reacts first, stabbing him with a spear in the throat beneath the chin: Asius lies splayed out on the ground, screaming or grunting like a wild animal (βεβρυχώς), while squeezing handfuls of blood-soaked dirt (κόνιος δεδραμένος αἵματοεσσής). Willcock notes the savage detail of this description - an especially horrible image.  

Homer’s ability to describe the pain of the wound, so as to make the listener feel it, combines with anatomical descriptions that are often acutely sensitive to detail. I will close with an especially realistic example, which combines an almost clinical description of the injury with an evocative simile - all to give a multi-dimensional perspective on where, when, and how badly the wound hurts. It is also a description that will resonate with the women in Homer’s audience. In the middle of Iliad 11, the Achaean forces are facing a crisis: the Trojans are pressing against the Achaeans’ defensive wall, Achilles is still sitting out the battle, and two of the remaining all-star players are seriously injured (Diomedes and Odysseus, who suffers a really nasty gash down the length of his side, Il. 11.437). Here, Agamemnon, for the first time in the Iliad, distinguishes himself in action (Il. 11.251-6):

στῆ δ᾽ εὐρᾶξ σὸν δουρὶ λαθῶν Ἀγαμέμνων δὸν, νῦξε δὲ μιν κατὰ χεῖρα μέσην ἀγκόνος ἔνερθε, ἀντικρῦ δὲ δίεσχε φαεινὸν δουρὸς ἄκωκή, ῥήγησεν τ᾽ ὁ ἐπείτα ἁναξ ἀνδρὸν Ἀγαμέμνων: ὀλλ᾽ οὖν᾽ ὃς ἀπέληγε μάχης ἡ δὲ πτολέμιοι, ὀλλ᾽ ἐπόρουσε Κόωνι ἔχων ἄνεμοτρεφὲς ἔγχος.

And [the Trojan Co ön] stood there, having snuck up on Agamemnon slantwise with his spear, and he gashed him down the middle of his forearm below the elbow, and the shiny spearpoint went straight through it to the other side. And at that moment lord Agamemnon froze: but, even under these conditions, he did not retreat from combat, but darted straight for Co ön with his wind-sailing spear in hand.

A spearpoint tears down the middle of his forearm below the elbow, and Agamemnon looks down and sees it penetrating to the other side. Then Agamemnon’s blood runs cold - this looks like a mortal wound. Yet, interestingly, he does not yet feel the pain - he soldiers on, and faces his opponent, trying to prevent him from dragging his brother’s corpse (another of the Trojan elder Antenor’s sons) away; he kills them both. Then, about ten lines after his arm was stabbed, as he is reviewing the ranks of his troops while carrying heavy weapons, Homer says that all this time, hot blood has been gushing from the wound. But then the bleeding stops, the blood begins to clot, and sharp pains shoot straight through him - which Homer compares to the experience of a woman in labor (Il. 11.264-283):

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Ibid.

48 In another passage, Il. 5.902-904, Homer compares clotting blood to milk congealing into cheese, when mixed with “the juice from the fig tree as rennet” (Willcock, Iliad I-XII, 241).
aúttáρ ὃ ὅλων ἐπεμελείτο στίχος ἀνόρον ἐγχεῖ τ’ ἀορί τε μεγάλοισι τε χερμαδίσιν, ὃφρα οἱ αἷμ’ ἐκ τερμὸν ἀνήγοθεν ἕξ ὀφτελῆς. αὐτάρ ἐπεὶ τὸ μὲν ἔλκος ἐπέρσετο, πάισατο δ’ αἷμα, ὀξεία δ’ ἄδυναι δύνον μένος Ἀτρείδαο. ὡς δ’ ὤτ’ ἀν ὀδίνουσαν ἔχῃ βέλος ὅξι γυναῖκα δρμό, τὸ τε προείσθη μογοστόκοι Ἐιλείθυια Ἡρᾶς θυγατέρες πικρᾶς ὀδίνας ἐχουσαι, ὡς ὀξεί’ ὀδύναι δύνον μένος Ἀτρείδαο. ἐς δύρον δ’ ἀνόροοι, καὶ ἴσως ἐκέπτετε νησίν ἐπὶ γλαφυρῆσιν ἐλανευμένει: ἴχθωτο γὰρ κῆρ.

And he [Agamemnon] was reviewing the ranks of his other troops, carrying with him his spear, and sword, and large throwing-stones, while, all the time, hot blood had still been gushing from his wound. But when the wound began to dry up, and the bleeding stopped, sharp pains sunk deep into Agamemnon’s senses. Just as when a sharp pang [lit., a “missile”] takes hold of a woman in labor, which the labor-inducing goddesses Eileithyia, Hera’s daughters, send upon her, so severe were the sharp pains that sank into Agamemnon’s strength. And he hopped up onto his chariot stand, and ordered his charioteer to take him back to the hollow ships: for he [lit., “his heart”] was in agony.

Willcock’s commentary notes that this sequence of events is “accurate”: it is when a deep wound stops bleeding, that it really begins to hurt.⁴⁹ Agamemnon mounts his chariot and cries to his driver, and he shouts a final order and exhortation to his men before he is carted off the battlefield towards the Achaeans’ tents where his wound will be treated.⁵⁰

Conclusion

Homer described the world he knew with a love for physical, tangible things. He used similes and adjectives that delight his audience with the experience of raw sensation: the clash of arms, the sparkle of light reflecting off the surface of the sea, or off wine, the smell of oils and herbs, the sounds and movements of wild beasts, birds and insects. These descriptions, also, have a level of detail that reveals a kind of early scientific interest. His observations of the human body and of machines (chariots, looms, ships, etc.) pay attention to how they are put together and

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⁴⁹ Willcock, Iliad 1-XII, 301: “This is accurate; the irritation and inflammation would come particularly after the bleeding had stopped.”

⁵⁰ Much of the rest of Iliad 11 takes place in the company of Nestor and Machaon, the Achaeans’ leading doctor (who, in this book, has also been wounded), and also Patroclus, whom a concerned (or, merely interested?) Achilles has sent back to the Achaeans camp for information. In a future paper, I hope to turn from the subject of battle wounds to their treatment: how Homer’s army doctors used herbal analgesics and had techniques for removing barbed arrowheads, and for otherwise treating and dressing wounds.
how they work. Battle wounds are explained as excruciating lessons in anatomy. In the context of all these descriptions, Homer’s poetic expressions are often not completely figurative: “winged words” (epea pteroenta) do not, of course, really have “wings,” but they do have to have some way of getting from the speaker’s mouth to the listener’s ear. Perhaps the inventor of this formula was trying to say something about the physical behavior of speech - that “words” travel. This phrase, then, is more than just a poeticism or a metrical filler - it is also an early attempt to define speech, and to describe how it travels through the air. There is a logical progression from epea pteroenta to the Aristotelian concept of sound as a kind of sensory kînēsis (κίνησις) that passes through a medium (whether water, air, or solid objects). That Aristotle seems to describe auditory kînēsis as a kind of vibration in the air makes his conclusion even more remarkable. Homer’s language for describing the natural world and the human body, even in what seem to be simple linguistic conventions or poetic turns of phrase, helped lay the foundation for later philosophical concepts, such as the physiological basis of human emotion. Homer’s poems, in this sense, are not just masterful and entertaining works of art, but also an early attempt to understand and come to terms with the nature of the universe. The poet may have not been thinking scientifically, but just in his ability to find the right words to describe these phenomena, he took a first step towards explaining them.

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51 Homer has what could be called a boyish fascination with neat stuff (like chariots, ships, gushing wounds, insects, lions, horses, and falcons etc.). Here, I was influenced by Albin Lesky’s introductory comments on Homer (Albin Lesky, A History of Greek Literature, trans. James Willis and Cornelis de Heer (Indianapolis: Hackett, 1996 [1966], 17-19): “There is a naïve delight in the physical world, expressed in elaborate descriptions of chariots, ships, arms and clothing…”

52 cf. the famous “lyre player” fresco from the Late Bronze Age palace of Pylos, for which R. Janko gives an interesting interpretation: the bird “surely symbolises [the musician’s] song, just as Odysseus’ bow-string ‘sings like a swallow’ at f 410 [i.e., Od. 21.410].” The metaphor of “winged sound” existed among Greek-speakers (and, as the Pylos fresco suggests, among bards) long before Homer used it as a formulaic expression. (Richard Janko, review of A New Companion to Homer, edited by Ian Morris and Barry Powell. Bryn Mawr Classical Review, 9.5.20 [1998], http://bmc.edu/1998/8.5.20.html, ¶ 26).