The Androids of Hephaestus: Between Human and Machine in the Iliad

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Abstract

The description of Hephaestus’ workshop in Iliad 18 presents several kinds of fanciful automata. Contrary to several previous treatments of this topic, this paper argues that it is not anachronistic to think of these figures as “robots”—i.e., as having some kind of inner workings, even though Homer does not explicitly say what they are. This discussion helps to situate the Homeric poems within the pre-history of Greek natural philosophy.¹

Keywords

Homer, Iliad, αὐτόματος [automatos], θαύμα [thauma]

Introduction: Hephaestus as Magician or Engineer?

A curious debate, as it has developed over the last few decades, raises several questions about Homer’s place in the history of ideas.² This discussion has focused on the marvelous products of Hephaestus’ workshop, which include a set of self-rolling tripods, self-blowing bellows, and several young women made of gold. The poet introduces this new kind of intelligent being, neither

¹ This article originated as a paper delivered at the Second University of Florida Classics Graduate Symposium, October 13, 2018. As presented here, much of the content derives from the second chapter of my dissertation: “Physiology: The Androids of Hephaestus,” from “The Mind of Homer: A Study in Homeric Physiology and Thought,” defended July 27, 2020. However, I have thoroughly revised and expanded large parts of the argument from its earlier forms. I would like to thank my dissertation advisor, Professor Robert Wagman, Professor Flora Iff-Noël, and my anonymous reviewer for their help in shaping and sharpening the discussion.

god nor human, when Thetis visits Olympus to commission a new suit of armor for her son Achilles in *Iliad* 18.368ff.:³

> καὶ ἀπ’ ἀκμοθέτου πέλωρ αἵτιν ἀνέστη χωλεύων: ὑπὸ δὲ κνήμαι ρόωντο ἀραιαὶ. φύσες μὲν ρ ἀπάνευθε τίθει πυρός, ὀπλα τε πάντα λάρνακ’ ἐς ἀργυρὴν συλλέξατο, τοῖς ἐπονεῖτο: σπόγγῳ δ᾿ ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δῦ δὲ χιτῶν᾽, ἀμφὶ πρόσωπα καὶ ἀμφὶ χεῖρ᾽ ἀπομόργνυ αὐχένα τε στιβαρὸν καὶ στήθεα λαχνήεντα, δὐ δὲ χιτῶν’, ἐλε ὑπὸ δὲ σκήπτρον παχύ, βῆ δὲ θυραξ. χωλεύων: υπὸ δ᾽ ἀμφίπολοι ῥώοντο ἄνακτοι χρύσειαι ζωῇ σινεήσιν εἰσοικεῖαι. τῇς ἐν μὲν νόος ὑπαίθα ἀνακτος ἐποίπνυον.

And the great looming figure [of Hephaestus] stood up from his anvil, limping: and his shins wobbled feebly beneath him. And he moved the bellows away from the fire, and stowed away all the instruments of his trade inside a silver box; and he wiped his face and hands all around with a sponge, and his powerful neck and hairy chest, and he put on a tunic, and took his thick scepter, and went towards the door, limping all the time: and his servants rushed up to help their master, supporting his weight—they were made of gold, but just like real live girls. They had intelligence (*noos*) in their chests/minds (*phrenes*), and they had the power of speech within them, and physical strength, and they had learned from immortal gods how to do their work. They bustled along, supporting their master’s weight.⁴

The gist of these verses, at least at first glance, is in the contrast between the blacksmith god’s appearance and that of his artificial servants: one has a massive sweaty torso and frail, wobbly shins, while the others have a metallic sheen and move in “bustling” strides.⁵ Does it make more sense to think of these “servants” (ἄμφίπολοι) as animated statues or as machines, or as something

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³ All translations of Greek passages are my own, unless otherwise noted.
⁵ I discuss the interpretation of the verb ἐποίπνυον below.
in between? Likewise, did the poet understand their creator more as a divine magician or as a
divine engineer?6

It is tempting for modern readers to picture Hephaestus’ creations as a kind of robot. Even
Hellenistic and Graeco-Roman readers began interpreting this story (and others like it) by the lights
of their own technology.7 Yet Homer does not mention any internal moving parts; nor, as historians
tend to argue,8 could he even have imagined such a possibility, in an era long before Hellenistic
inventors provided poets and philosophers with examples of real self-moving gadgetry, some
anthropomorphic, that operated on mechanical principles (e.g., on steam and water pressure).9
With this argument in view, Hephaestus’ automata look less like “robots” and more like
“talismanic” figures,10 of the sort described in a variety of ancient sources concerning magic and
witchcraft.11 In particular, some classicists have pointed to the widespread importance of

6 “[The golden servants]’ movement, as well as their intelligence and speech, is of course the result of magic, not
University Press, 1991). Edwards does, however, refer to these beings as “robots.”
7 See Bosak-Schroeder, “Religious Life,” on the comment of a bT scholiast on Hephaestus’ tripods (ll. 18.373) that
δήλος δὲ ἐστὶν εἰδώς μηχανικὴν (“[Hephaestus] clearly knows ‘mechanics’”): “The bT scholiast has projected
the technology of his own time onto the automata of Homer’s time, transforming Hephaestus from a magician into a
mechanic and the ancient tripods from magical creations into works of engineering” (129).
8 See Berryman, “Ancient Automata,” and Bosak-Schroeder, “Religious Life”: “Hephaestus’ tripods are divine
creations that operate by magic, not mechanics” (“Religious Life,” 131). For a response to this argument, see Martin
considers Hephaestus’ automata from the perspective of fourth-century interpretation (including, e.g., Aristotle, and
the comic playwright Philippus, as discussed in Aristotle), with “robots” imagined as a thought experiment for
replacing human slaves (empsypha organa) with mechanistic ones (apsycha organa). However, Devecka also suggests
that, even from an Archaic perspective, Hephaestus’ tripods are better interpreted as machines than as pieces of
“enchant[ed]” “furniture” (or, at least, that they are best interpreted as something in between). All the same, Devecka
agrees with Berryman’s thesis, to the extent that “it would be perversely anachronistic…to suggest that Homer had
anticipated by several centuries the discoveries of ancient mechanics” (Ibid., 57).
9 For a review of Hero of Alexandria’s inventions, and a discussion of the philosophical orientation of their designer,
see Karin Tybjerg, “Wonder-Making and Philosophical Wonder in Hero of Alexandria,” Studies in History and
10 Bosak-Schroeder, “Religious Life,” distinguishes the terms robot and automaton as they are used among historians
of technology: “the difference between self-moving machines that operate electronically and have been computer-
programmed (robots) and those that do not (automata)” (130–31).
11 On comparisons with Near Eastern and Mesopotamian sources, see Christopher A. Faraone, Talismans and Trojan
also Deborah Tarn Steiner, Images in Mind: Statues in Archaic and Classical Greek Literature and Thought
animation rituals within the Near East and Mesopotamia during the era in which the Homeric epics were coming to fruition.\textsuperscript{12} Comparable ideas were also taken seriously well into late antiquity, as attested by what remains of the theurgical literature. Although those texts, which advised practitioners in recipes for bringing statues to life, belong to the Graeco-Roman era,\textsuperscript{13} they demonstrate the kind of magical event that Homer may have imagined was involved in animating Hephaestus’ golden helpmeets.\textsuperscript{14} It was, after all, the province of the craftsman god to sculpt or forge creations that then received the breath of life. See, for example, the Pandora of Hesiod’s \textit{Works and Days}, where the gods place various attributes inside the woman-shaped vessel, somewhat like Hephaestus’ golden maidens have learned their skills “from the immortal gods” (ἀθανάτων δὲ θεῶν ἀπὸ ἔργα ἵσασιν).\textsuperscript{15}

Yet according to an alternative view, such conclusions overlook the setting in which these descriptions appear: a smoky, clattering foundry, in which the master craftsman is hard at work.\textsuperscript{16} In other words, it is in the spirit of the \textit{Iliad} to imagine what an inventor with superhuman skill could achieve with the same materials and instruments available to an ordinary blacksmith.\textsuperscript{17} We see the same extrapolation in the field of medicine: Machaon, the Achaeans’ chief army doctor,

\begin{itemize}
  \item \textsuperscript{12} For discussion that also includes Egyptian ritual in comparison with Greek sources, see Steiner, \textit{Images in Mind}, 114ff. For a more skeptical take on those comparisons, see Sarah Iles Johnston, “Animating Statues: A Case Study in Ritual,” \textit{Arethusa} 41 (2008): 473–74. See Faraone, \textit{Talismans and Trojan Horses}, 21.
  \item \textsuperscript{13} See S. I. Johnston, “Animating Statues,” which examines fragments from Proclus and Iamblichus, as well as discussions in Renaissance scholars (e.g., Ficino).
  \item \textsuperscript{14} On the association of Hephaestus with magic, see Faraone, \textit{Talismans and Trojan Horses}, 18–21. Cf. Minos Kokolakis, “Homeric Animism,” \textit{Museum Philologum Londiniense} 4 (1981): “Perhaps one should fall in with [Walter] Leaf in taking these animated maidens as a survival of a primitive belief attaching magical powers to the mythical inventors (and gifted craftsmen) of metallurgy such as Telchines of Rhodes, the Idaean Dactyls in Crete, Talos the Bronze Man, Daedalus and others” (106).
  \item \textsuperscript{15} For the comparison between Hesiod’s Pandora and the “mechanical serving girls” of \textit{Il.} 18, see Steiner, \textit{Images in Mind}, 116–17, along with comments on the difference between the Pandora narratives in the \textit{Theogony} (which “focuses exclusively on the surface decoration”) and \textit{Works and Days} (in which the poet “pays equal attention to the cavity inside”).
  \item \textsuperscript{16} For this emphasis on Hephaestus’ creations as beings that were “made, not born,” see Mayor, \textit{Gods and Robots}, I–6, and passim.
  \item \textsuperscript{17} Ibid., 103–4, 134.
\end{itemize}
treats the wounded Menelaus with herbal analgesics, just as Paeon, at the end of *Iliad* 5, treats the wounded Ares with a more potent painkiller that also stops Ares’ bleeding and instantly heals the wound. Homer suggests that if human practitioners can already achieve such aims with the drugs and surgical methods available on earth, then we can imagine what their analogues on Olympus can do. Furthermore, it is hard to tell how the sources mentioned above should relate to the *Iliad*. For example, it matters to what extent the theurgical literature represents a late offshoot of Neoplatonist ideas, or whether these doctrines were an attempt to rationalize much older traditions that already existed in Archaic Greece. Even if that early ritual culture did exist, the author(s) of the *Iliad* may not have participated in it. Sorcery and shamanism are notably absent from this epic, as opposed, in some respects, to the *Odyssey*. Perhaps there is a third way of characterizing Hephaestus’ automata that is most consistent with the worldview of the poem.

**A Third Perspective: Reversing the Question**

To move this conversation forward, we can begin by reversing the usual question: viz., to consider not only how much Homer’s automata are like humans (as the poet remarks: Hephaestus’ attendants were “made of gold, [but] just like real live girls” [χρύσειαι ζωήσι νεήνισιν εἰόικῷαι]), but also, on the Homeric worldview, how much we humans are like them. This is perhaps the

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19 Cf., also, Patroclus’ use of a “bitter root” to treat Eurypylus’ wound in *Il.* 11.842-848. Verse 848 may imply that this medication also stopped the bleeding. Without the simile of rennet and coagulating milk of *Il.* 5.899-906, the result seems less miraculous than Paeon’s healing of Ares, as does Eurypylus’ gradual recovery—Patroclus is still at his side in *Il.* 15.390 ff., where an attendant takes over for him. Of course, Ares’ immediate recovery is also due to his own immortality, as well as to Paeon’s marvelous pharmakon.

20 This statement represents Mayor’s argument and general approach in Mayor, *Gods and Robots*.

21 Taking this view, Johnston argues that Greek theurgy (as we know it from literary sources) was likely a late development. See Johnston, “Animating Statues,” 445–47, for her response to Steiner and Faraone.

22 For this general view, see Bruno Snell, *The Discovery of the Mind*, trans. T.G. Rosenmeyer (New York: Dover, 1982 [1953]), 21, 23–42.

crucial point, and one that has been overlooked in discussions on this topic, given that the poet has much to say about the articulations and material processes of the human body. There is a ghost in the machinery of “Homeric man,” but one that is itself composed of several substances. As such, we can almost regard Homeric materialism as “proto-scientific,” while appreciating the irony that such beliefs were likely the default position of much prehistoric and Bronze Age religion, irrespective of cultural contact. Homer fleshes out this worldview by describing the workings, and inner-workings, of its contents; in other words, one could say that he imagines the physical consequences of the Archaic way of observing the natural world. In its context, the purpose of such detail was to enliven the narrative (for instance, to make death scenes especially vivid), but it also provided later philosopher–poets with the language to undertake their own treatments of similar topics.

In order to see Hephaestus’ androids from this specifically Homeric (rather than Hellenistic) perspective, it will be helpful to appreciate the poet’s interest in technology elsewhere in the *Iliad*. There are several extended passages in the Homeric corpus devoted to picturing a vehicle or invention. The poet attends, first of all, to the use of valuable materials, but then takes care to describe how all the working parts fit together. In *Iliad* 5, for instance, the cupbearer servant-goddess Hebe (who here doubles as a mechanic) helps assemble a flying chariot so that

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24 For two exceptions, see Mayor, *Gods and Robots*, and Bosak-Schroeder’s review of Mayor, which come close to posing the questions I raise here: “[Mayor’s fifth] chapter raises an intriguing question, unresolved in the book: if ancient people saw the human body as a divine construction, then would they strongly distinguish Talos and similar lifeforms as artificial?” (Bosak-Schroeder, Review of *Gods and Robots*).

25 Anthony Barbieri’s new book, *Ancient Egypt and Early China: State, Society, and Culture* (Seattle, WA: University of Washington Press, 2021; not yet seen by me), helps to identify such similarities between ancient Chinese and Egyptian beliefs about the physical nature of the soul. I wish to thank Professor Barbieri for discussing this topic with me after a talk he gave at the University of Florida Harn Museum of Art, October 29, 2019.

26 For ideas relevant to this question, see Snell, *Discovery of the Mind*, especially chapter 9, “From Myth to Logic: The Role of the Comparison” (191–226), on the evolution of the philosophical analogy out of the Homeric-style simile.

27 Cf. the description of Priam’s mule cart in *Il*. 24.268–74, or of Odysseus’ design for a craft to escape Calypso’s island (*Od*. 5.243–61). Within the broader Homeric corpus, consider also the lyre Hermes fashions for himself (*Hymn to Hermes* 39–51).
Athena and Hera can ride off to find their father Zeus on the highest peak of Olympus and ask for his permission to enter the battle on behalf of the Achaeans. Eleven lines of description give an idea of the curious detail of the whole apparatus:

Ἑμὲν ἐπουχωμένη χρυσάμπυκας ἔντυεν ἵππους Ἄρη πρέσβη τεύχες θυγάτηρ μεγάλου Κρόνοιο: Ἅρη δ᾽ ἀμφ᾽ ὀχέσσαι θοῦς βάλε καμπύλα κύκλα ἁλκέα ὀκτάκυκλα σιδηροῖς ἀξόνα ἀμφί, τῶν ἦτοι χρυσέα ἅφιτος, αὐτὰρ ῥηθήκεν ἱερός ἐπίσσωτρα προσαρηρότα, θαῦμα ἰδέσθαι: πλημμναί δ᾽ ἀργύρου εἰσὶ περίδρομοι ἀμφότεροι: δίφρος δὲ χρυσέως καὶ ἀργυρέως ἵππων ἐντάται, δοῦσι δὲ περιδρομοὶ ἀντυγές εἰσι.

toû ð᾽ ἐς ἀργύρους ρυμός πέλεν: αὐτὰρ ἐπ᾽ ἀκρῳ δήσε χρύσεων καλὸν ζυγόν, ἐν δὲ λεπάδαν καλ᾽ ἐβάλε χρύσηι: ὑπὸ δὲ ζυγόν ἠγαγεν Ἄρη ἵππους ὑκώποδας, μεμοιὶ ἐριόδος καὶ ἀυτῆς.

Hera, great Kronos’ eldest daughter, was walking back and forth around her horses rigging them up with their golden frontlets; meanwhile Hebe was quick to fasten the curved wheels on either side of the carriage—the wheels were made of bronze, with eight spokes around a silver axle. And, look here (ητοί): their rims were made of rust-proof gold, and above them were attached bronze tires—amazing! And there were naves made of silver encircling the wheels on either side. And the chariot car was rigged with gold- and silver-plated straps, and there were double railings around the edge of it.

And a silver pole extended from it: and, she tied a beautiful golden yoke to the tip of it, and secured it with beautiful leather cables: and Hera, eager for strife and the excitement of battle, led her swift-footed horses beneath the yoke.28

Our first impression is of the glitz of so much gold and silver fastened one layer over the other. It was a standby of the epic genre to decorate a scene with precious materials, with which the poet could arouse the fascination of his audience. The first thing Homer notices about Hephaestus’ androids, before their nouns or their voice or physical strength, is that they are made of gold. On the other hand, the description of the goddess’ chariot also reveals an effort to adapt the formulae of epic language for a special purpose: both to name the separate pieces of a machine, and to

28 ii. 5.720–32.
narrate how they articulate with one another. In their way, such passages are a distant predecessor of later “technical ekphraseis,” the term Courtney Roby has given to Hero of Alexandria’s detailed expositions of his designs. Yet the emphasis of Homer’s chariot is as much on fantasy as function, and the elegance of the description perhaps reflects the care the poet himself took in assembling these hexameters.

Homer pays as much attention to the details of human anatomy as he does to the design of chariots and ships. This level of detail becomes especially vivid during battle scenes and descriptions of woundings. These passages are very violent, but they are not just violent—the descriptions are also precise (or, at least, they give the impression of precision and real anatomical knowledge). Furthermore, they are precise in the same way that the description of Hera’s chariot is: here we see all the moving parts exposed, with an understanding of how they fit together. Consider the following two painful examples. In the first, Homer describes a stab in the back—giving the location where the spear point severs a blood vessel (or, possibly, the spinal cord). In the second passage, Homer follows the course of an arrowhead from its point of entry through the bladder and pelvic bone, also giving a simile to illustrate the way the victim’s whole body reacts to the injury (like a worm, which first coils in response to nerve damage, and then straightens out in death).

Antílóchos dé Θώνα μεταστρεφθέντα δοκεύσας οὔτας ἐπαίξας, ἀπὸ δὲ φιλέβα πᾶσαν ἐκρεσαν, ἢ τʼ ἀνὰ νότα θέουςα διαμπερ ἀγχένʼ ἰκάνει: τὴν ἀπὸ πᾶσαν ἐκρεσαν: δ ὦ πτιος ἐν κονίῃσι κάππεσαν, ἀμφο χεῖρε φίλως ετάροιςι πετάσαςας.

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And Antilochus, eyeing Thoön as he turned his back, darted forwarded 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 dear comrades.  

Μηριώνης δ’ ἀπίόντος ἦς χαλκήρε’ ὁίστόν, καὶ ἐξῆλθε γλουτόν κάτα δεξίον: αὐτὰρ ὁίστος ἀντίκρυ κατὰ κόστιν ὑπ’ ὀστέον ἐξεπέρησεν. ἐξόμενος δὲ κατ’ ἀυθί φίλοιν ἐν χερσὶν ἑταίρων θημὸν ἀποπνείων, ὡς τε σκώληζ ἐπὶ γαίη κεῖτο ταθείς: ἐκ δ’ αἷμα μέλαν ῥέε, δεῦε δὲ 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.

The worm simile is also an example of the zoological interest of the Homeric poems. Such passages capture the subtle gestures of wild and domestic life through the use of pithy epithets and formulae. This is another way in which the Homeric poems presage the development of natural philosophy.

The similarity in detail between Homer’s mechanical and anatomical descriptions is not coincidental; rather, it represents an early understanding of the concept that the human body is also a “machine,” which is explainable in terms of material properties and processes: namely, the flow, dispersal, pressure, movement, absorption and excretion/secretion of various “substances” and the way these fluids and vapors stimulate the muscles and organs. The same is broadly true of Homeric physics on the macro-scale: the Iliad gave its audience a universe laid bare, in which they

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33 Il. 13.540–44.
34 Il. 13.650–55.
36 See Clarke, Flesh and Spirit, 57.
could see how almost everything on heaven and earth interacts.\textsuperscript{37} Expressions such as the one opening Book 9 present a lucid vision of this universe\textsuperscript{38}:

\begin{quote}
\textgreek{ód} oí mēn Tρώες φυλακάς ἔχουν: αὐτὰρ Ἀχαιών θεσπεσίη ἔχε φῶς φόβου κρυόεντος ἑπάρη, πενθεῖ δ’ ἀτλήτῳ βεβολήματο πάντες ἄριστοι. ἐν δ’ ἄνεμοι δύο πόντον ὅριντον ἱζηδόντα Βορέης καὶ Ζέφυρος, τῷ τε Θρήκηθεν ἅπτον ἐλθόντ’ ἐξαπίνης: ἀμφοῖς δὲ τε κῦμα κελαινόν κορθύεται, πολλὸν δὲ παρέξ ἄλα φῦκος ἔχεμεν: ἔνδειαζέτο θυμός ἔνι στήθεσαν Ἀχαιῶν.
\end{quote}

So the Trojans held their watch. But as for the Achaeans, an overpowering urge to flee (the companion of chilly fear) took hold of them, and all the captains were afflicted with unbearable grief. As when two winds stir the sea teeming with fish, Boreas and Zephyrus, which blow down from Thrace—both suddenly arriving, and all at once a dark wave breaks at its crest and heaps seaweed along the shore: \textit{so the Achaeans’ spirit [thumos] was being torn apart within their chests.}

This impression is vivid on several levels: the surf and seaweed are like the tissue and fluids of the thoracic organs, the winds like the \textit{thumos} stirring within them. From a first-person point of view, these poetic gestures evoke the clamminess and physical tension one feels in the throes of anxiety. From a third-person view, they reveal a pre-pre-Socratic intuition about a relationship between the workings of the cosmos and the inner-workings of living beings.\textsuperscript{39} They also introduce, centuries before the city–soul analogy of Plato’s \textit{Republic}, the notion of a correspondence between collective and individual human behavior and emotion.

In a universe describable at every scale in terms of physical events, are Hephaestus’ automata an exception to the rule? From the Homeric perspective, would such an exception even

\textsuperscript{37} On this observation in general, see Snell, \textit{The Discovery of the Mind}, 23–42 (“Chapter 2: The Olympian Gods”).

\textsuperscript{38} Cf. II. 23.596-600 for another, especially poignant, example.

\textsuperscript{39} For a discussion of pre-Socratic ideas on this point, and their relationship with Archaic and Early Classical artistic styles, see Guy Métraux, \textit{Sculptors and Physicians in Fifth-Century Greece: A Preliminary Study} (Montreal: McGill-Queen’s University Press, 1995): “No matter what their orientation—vitalistic, Pythagorean, monistic, Eleatic, or whatever—Pre-Socratic philosophers felt obliged to show the correspondences between cosmic structure and its manifestation in the human body” (xii). Yet Métraux more or less discounts Homer from this intellectual development: “The description of the body assumed an importance in natural philosophy which it had not had in epic and lyric literature” (Ibid.).

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be conceivable? Even when his gods intervene in human events in miraculous ways, the poet usually offers a full description of their activity and even an “explanation” for how they accomplish their purposes.⁴⁰ When Athena gives Diomedes “god-vision” in Iliad 5, so that he can see the Olympians as they set foot on the battlefield, she removes the “mist” (ἀχλός) from his eyes.⁴¹ When Thetis promises Achilles that she will not allow Patroclus’ corpse to rot and breed maggots, she treats it with a dose of nectar and ambrosia applied through the nostrils.⁴² All of this activity is exposed to view, and none of it is presented as completely inscrutable to human understanding. If there is a non-corporeal dimension in the Iliad, the poet does not have much to say about it.

Although hardly original,⁴³ these observations help break an impasse in the debate outlined above. With Hephaestus’ automata, we do not have to think either that Homer was anticipating Classical or Hellenistic technology, or that he was limited to magical thinking. Instead, the anachronism bends the other way: he “could already understand [his] world” (or, at least, large parts of it) in what can be called “mechanistic terms.”⁴⁴ We can make this observation without losing Sylvia Berryman’s distinction that true mechanics, as a technical and mathematical discipline, did not emerge until the fourth century at the earliest. She has cautioned that using the terms *mechanistic* and *materialistic* interchangeably obscures the history of this discipline (τὰ μηχανικά) and its influence on Hellenistic philosophy. In Berryman’s view, it is also anachronistic to describe Democritean or Epicurean atomism as “mechanistic,” as some historians of science

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⁴⁰ Again, as Bruno Snell observes (see Snell, The Discovery of the Mind, 23–42 [“Chapter 2: The Olympian Gods”]).
⁴¹ II. 5.127. Cf. II. 15.667–73.
⁴³ For an expansive study important to this question, see R. B. Onians, The Origins of European Thought (Cambridge: Cambridge University Press, 1951). For a more recent treatment of Homeric physiology (especially on the absence of a separation between body and soul), including some criticisms of Onians’ approach, see Michael Clarke, Flesh and Spirit in the Songs of Homer: A Study of Words and Myths (Oxford: Oxford University Press, 1999).
⁴⁴ I would like to thank my anonymous reviewer for help with clarifying this crucial point, and with the wording of this sentence.
have done.\textsuperscript{45} Yet drawing this distinction too sharply can introduce an obscurity of its own—viz., it can prevent us from noticing that Archaic authors were already thinking of their world, with all its natural and artificial objects, in terms of physical articulations and interactions. This mindset characterizes the Ionian tradition in particular, whose poets—from Homer to Bacchylides—preferred elucidation to mystery in their narrative style. Appreciating this artistic and intellectual lineage helps explain why natural philosophy arose when and where it did in the ancient Mediterranean.

\textsuperscript{45} Sylvia Berryman, \textit{The Mechanical Hypothesis in Ancient Greek Natural Philosophy} (Cambridge: Cambridge University Press, 2009), 21–53.
Between Physiology and Mechanics

From this historical-philosophical perspective, Hephaestus’ automata become a mirror for contemplating our own natures. When we see the huffing-puffing interior of Hephaestus’ workshop, complete with automatic devices that assist the craftsman god in his work (including bellows that obey his verbal commands, but also, intelligently, know when to sit still and when to blast air into the forge), we realize that the same forces at work in these machines are also at work in the human body:

βῆ δ’ ἐπὶ φύσας:
τὰς δ’ ἐς πῦρ ἔτρεψε κέλευσέ τε ἐργάζεσθαι.
φύσας δ’ ἐν χαλκόοισιν ἔκισσα πᾶσι έφύσων
παντοίην εὔπροσέμενον ἀὔτιμήν ἔξανείσαι,
ἄλλοτε μὲν σπεύδοντι παρέμμεαι, ἄλλοτε δ’ αὐτε,
ὅπως Ἡφαιστός τ’ ἐθέλοι καὶ ἐργὸν ἄνοιτο.
χαλύκων δ’ ἐν πυρὶ βάλλεν ἀτειρεὰ κασσίτερον τε
καὶ χρυσὸν τιμῆντα καὶ ἄργυρον: αὐτὰρ ἐπείτα
θῆκεν ἐν ἀκμοθέτῳ μέγαν ἄκμονα, γέντο δὲ χειρὶ
ῥαστήρα κρατερῆν, ἐτέρησε δὲ γέντο πυράγρην.

And [Hephaestus] returned to his bellows: and he swiveled them towards the flame and ordered them to get busy: and the bellows, twenty in all, began blasting air within the cauldrons’ nozzles, ejecting volatile air of different pressures and temperatures [or, “from all sides”], and, sometimes, standing by so their master could do his work, and at other moments blasting again, in just the way that Hephaestus wanted and in such a way that he could finish the job. And he threw tough bronze into the flame, and tin and precious gold and silver: and then he placed a massive anvil on the anvil-block, and took his powerful hammer in one hand, and a pair of tongs in the other.46

Let us compare this passage,47 in which Hephaestus prepares to make Achilles’ shield, with another in which the subject is not molten metal but flesh and blood. Here, Agamemnon directs

46 Il. 18.468–77.
47 Cf. Edwards’ commentary, which identifies χαλάοοισιν as “nozzles.” Edwards, The “Iliad”: A Commentary. “The true meaning must be ‘nozzle through which the blast is forced, tuyere’” (209–10). Edwards also understands παντοίην to mean that “the bellows blow upon the fire and the work from all angles [citing Il. 17.55–56 for comparison].” Yet Robert Fagles translates, “And the bellows, all twenty, blew on the crucibles, / breathing with all degrees of shooting, fiery heat.”
his anger at the seer Calchas, whom Achilles has just prodded into revealing the cause of the plague afflicting the Achaean army camped on the beaches of Troy:

\[\text{τοίσι δ’ ἄνεστη}\
\text{ήρως Ἀτρείδης εὐρὴ κρείων Αγαμέμνων}\
\text{ἀχνύμενος: μένεις δὲ μέγα φρένες ἀμφιμέλαιαι}\
\text{πιστπλαντ’, ὅσε δὲ οἱ πυρὶ λαμπτοῦντι ἔκτην:}\
\text{Κάλχαντα πρῶτισσα κάκ’ ὀσσόμενος προσέειπε:}\
\]

And the noble son of Atreus stood up before them, Agamemnon who ruled far and wide, [and] he was deeply pained: and his lungs [phrenes]—dark on both sides—were filling greatly with anger [menos], and both his eyes flashed like a glowing fire: he first of all turned to Calchas, giving him a menacing look, and he said…

In their attempts to translate these lines in physiological terms, some modern critics have explained the darkening of Agamemnon’s lungs as the result of an influx of blood and bile (cholos). Alternatively, the phrase φρένες ἀμφιμέλαιαι may refer not to a change in color but to the usual darkness of the outer lung tissue as it appears upon dissection (or because the lungs are “hidden in the body”). Either way, these interpretations tend to overlook the simile the poet adds to clarify his meaning: “and his eyes flashed like a glowing fire” (ὅσσε δὲ οἱ πυρὶ λαμπτοῦντι ἔκτην). A resemblance to bellows pumping air into a furnace suggests itself. Likewise, Achilles’ description of χόλος in Iliad 18.110ff. more explicitly refers to the “smoke of anger,” in a double comparison that also hints at the viscosity of bile:

\[\text{ὡς ἔρις ἐκ τε θεῶν ἔκ τ’ ἀνθρώπων ἀπόλοιπο}\
\text{καὶ χόλος, ὃς τ’ ἔφηκε πολύφρονα περ χαλεπῆναι,}\
\text{ὁς τε πολύ γλυκίων μέλιτος καταλειβομένο}\
\text{ἀνθρώπον ἐν στήθεσιν ἀξεῖται ἤπει καπνός:}\
\]

48 II. 1.101–5.
49 See Clarke’s discussion, which reviews these possibilities. Clarke, Flesh and Spirit, 75–6, 92–100.
50 Even though the phrase is tied to expressions of grief and anger, as LSJ note, s.v. ἀμφιμέλας; this entry also connects the phrase with color changes in sea imagery. Willcock, Iliad I-XII, mentions the different interpretive possibilities for this adjective, and he concludes that “it is…rather more likely that μέλαιαι is a stock epithet of φρένες (dark, as hidden in the body), and is no more significant than the same word applied to ships” (189). The difference raises the question of whether, and where, epithets ought to be translated generally or particularly. See Onians, Origins of European Thought, 30ff., on the phrenes also as vessels for fluids, as well as breath.
51 I would like to thank Professor Velvet Yates for noticing this possible connection during a presentation of an early version of this paper in October 2018.
How I wish that strife would perish from both gods and men, along with anger [cholos], which incites even a prudent man to wrath, and which much sweeter than dripping honey expands within men’s chests like smoke, as now Agamemnon, lord of men, has enraged me. But, angry as we are, we will let go of what happened before, having tamed the dear wrath [thumos] within our chests by necessity.

Given the generally impressionistic nature of Homeric similes, it is not obvious how, or whether, “sweeter than dripping honey” should integrate with the rest of this imagery. Are these separate expressions that are simply tacked together in the process of composition? Or can we expect all the parts to cohere into a single extended thought? It is perhaps one of the easiest mistakes for the Homeric interpreter to try to over-harmonize coincidental pairings of formulae.\(^{52}\) Does it violate the principles of Homeric composition, or otherwise spoil the poetry, to picture χόλος as both liquid and vaporous, or as turning from liquid to vapor?\(^{53}\) Or, is the comparison meant only to illustrate the paradoxically cloying “sweetness” of such a pernicious emotion (see φίλον in line 115),\(^{54}\) along with the swelling of an angry chest?\(^{55}\) In either case, these verses leave the impression of an interaction among bodily substances, including thumos. This word shares its root with θύειν (“to sacrifice”), θύος (“burnt sacrifice”), and θυμιάων, all apparently connected to an early impression about smoke and fire rising from a burnt offering (cf. the Latin fumus).\(^{56}\) The variety of Homeric terms describing the appearance and aroma of sacrificial cooking (e.g., “κνίση

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\(^{54}\) See Edwards, The “Iliad”: A Commentary, 161: “Usually it is words of peace and reconciliation which are ‘sweeter than honey’ (e.g. 1.249…), so the comparison has special point here.”

\(^{55}\) Ibid.: “Here the idea seems to be that of a swelling, blinding smoke (as Ate blinds her victims).”

\(^{56}\) Onians lists fumus among other IE cognates. Onians, Origins of European Thought, 44.
δ᾽ οὐρανὸν ἵκεν ἑλισσομένη περὶ καπνῷ,” Il. 1.317; and “κνισῆν δὲ τὸ δῶμα περιστεναχίζεται αὐλῇ,” Od. 10.10) reflects the amount of time the peoples of the Archaic Mediterranean, and of earlier times, spent gazing into the whirling clouds rising from their altars. From watching “the sparks fly upwards,” they seem to have realized something about their own physical natures by association: for a material either to be sentient or to provide an animal with sentience (i.e., to be able to respond “on its own” [αὐτομάτη]), it has to be made of something breathy, fluid, nimble or volatile—something that will seem by ordinary observation to move in unpredictable ways.

Without pressing the bellows–lungs comparison too closely, we can appreciate how well these passages fit within a universe in which every event depends on some physical interaction and on the properties of various substances. For example, the same word (ἄτμη) describes both the air coursing through Hephaestus’ automatic bellows and the source of energy within a hero’s chest:

φρονέω δὲ τετιμῆθαι Δίος αἰσῆ,
Η μ᾽ ἔξει παρὰ νησὶ κορονίσιν εἰς ὁ κ’ ἄτμη
ἐν στήθεσσι μένῃ καὶ μοι φύλα γούνατ᾽ ὀρώρῃ.

I [Achilles] am aware that I am honored by the dispensation of Zeus himself, which will sustain me beside the beaked ships so long as ἄτμη abides in my chest and my knees can still run fast.58

That a similar expression (…γούνατ᾽ ὀρώρῃ) appears elsewhere with αἷμα instead of ἄτμη implies a close relationship between the breath and blood that quicken the hearts of both humans and other animals59:

ὥς εἰ τε δαφονοι θῶς ὄρεσφιν
ἀμφ’ ἔλαφον κεραὸν βεβλημένον, ὃν τ’ ἐβαλ’ ἀνήρ
ἰῷ ἀπὸ νευρῆς: τὸν μὲν τ’ ἠλυξε πόδεσσι
φεύγων, ὅφη αἷμα λιαρὸν καὶ γούνατ᾽ ὀρώρῃ;

57 Job 5:7: “Yet man is born unto trouble, as the sparks fly upwards.”
58 Il. 9.608-10.
59 Cf. the discussion in Onians, Origins of European Thought, 44.
...as if like gore-soaked [or, “tawny”] jackals in mountain heights encircling a horned stag, wounded by an arrow shot from a hunter’s bowstring: he had managed to escape the hunter on his feet, for as long as his warm blood stirred and his knees could carry him fast; but at the very moment when the swift arrow subdues his strength, raw-flesh-eating mountain jackals tear him apart in a dark woods: and then some daimon brings out a ravenous lion: and the jackals run off scared, and he begins to feed.60

The semantic range of ἀυτμή covers a variety of “warm billowing substances,”61 all with properties that have some connection to Archaic beliefs about what makes the human body move and feel. It further expands this network of ideas that ἀυτμή also refers to scents and their ability to travel long distances. In her private dressing room, as she prepares to seduce her husband, Hera applies a fragrance that wafts throughout and far beyond the halls of Olympus:

ἀμβροσίῃ μὲν πρῶτον ἀπὸ χρῶς ἰμερόντος
λόματα πάντα κάθηρεν, ἀλείψατο δὲ λίπ᾽ ἐλαιῶ
ἀμβροσίῳ ἐφορή, τῷ ρὰ οἱ τεθυμένοι ἦν:
τοῦ καὶ κινημένῳ Δίὸς κατὰ χαλκοβατές δῶ
ἐμπὶς ὡς γαϊάν τε καὶ οὐρανὸν ἰκετ᾽ ἀυτμή.

First with ambrosia she washed all the grime from her lovely skin, and she rubbed herself over with glistening olive oil, ambrosial and pleasing, which was her fragrance: and when it stirred through the bronze-tiled home of Zeus, its scent reached both earth and heaven alike.62

Like the savor from a burnt offering, Hera’s perfume can cross the gap between earth and heaven and in this way communicate between the two realms—a concept essential to the logic of ancient sacrifice. Thumos, comparably, is a medium responsible for physical movement, mental

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60 II. 11.474-81.
61 Clarke, Flesh and Spirit, 57, n. 5. Clarke notes that “ἀυτμή (occasionally ἀυτμῆν) is what is hot and billowing or flowing: for example the warm fragrance of melted oil (XIV. 174), the blast from Hephaestus’ bellows (XVIII. 471), the steam of boiling water (XXI. 366), the panting of a runner (XXIII. 765), the burning stuff that comes from Polyphemus’ eyeball (ix. 389), the furious blast of winds (xi. 400), the smell of cooking meat (xii. 369), and smoke (xvi. 290, xix. 9, 20).”
stimulation and awareness, and also for craving food and drink—as piqued by the aroma of cooking food and wine; it is also the “seat of the emotions,” including those of sexual desire and excitement, as the medium on which ἔρος has an overwhelming, heart-throbbing or breathtaking effect. The seeds of a coherent understanding of the world lie in these associations, which we will continue to explore in the following section.

**Metal, Flesh and Spirit: Reconstructing Hephaestus’ Automata**

Like the Cloud Gates of Olympus, which “creak” open “automatically” to make way for Hera’s and Athena’s chariot (αὐτόματα δὲ πύλαι μύκων οὐρανοῦ, *Il.* 5.749 = 8.393), Hephaestus’ twenty wheeled tripods are also called *automatoi*. They can roll themselves to and from the banquets of the gods, and they are also masterful pieces of craftsmanship, with golden wheels and elegantly fashioned handles. Yet as with all his other automata, Homer does not elaborate on, or even mention, how they work, except, in this case, to say that they have wheels beneath their bases:

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Ἡραίστου δ’ ἴκανε δόμον Θέτις ἀργυρόπεζα ἄφθιτον ἀστερόεντα μεταπρεπέ’ ἀθανάτοσι
χάλκεον, διὸ τ’ αὐτὸς ποιήσατο κυλλοποίον.
τὸν δ’ εἰρ’ ἱδρώοντα ἐλισσόμενον περὶ φύσας
σπεύδοντα: τρίποδας γὰρ ἐκίσσοι πάντας ἔτευχεν
ἐστάμενα περὶ τοίχων ἐδίσταθέος μεγάροιο,
χρυσά περὶ σφ’ ὑπὸ κύκλα ἐκάστῳ πυθμένι θήκεν,
ὄφρα οἱ αὐτόματοι θεῶν δυσαίατ’ ἀγώνα
ἡ’ αὐτίς πρὸς δῶμα νεοίατο ἱδέσθαι.
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63 *LSI*, s.v. θυμός, Α.Ι.1.
64 Ibid., Α.Ι.5.
66 On this point, see Devecka, “Did the Greeks Believe in their Robots?”: “Why, we might ask, would Hephaestus bother to make automated tripods that operated in precisely this way, by composition with wheels? Why not simply enchant a tripod so that it could use its ‘feet’ as feet, and walk? The answer, I would suggest, is that Hephaestus is not envisioned here as ‘enchanting’ his tripods at all: they are machines, built by craft, and *operating in an obscure but naturalistic way*” (59, my emphasis). In effect, Hephaestus has given these moving cauldrons the most mechanically efficient design. Also, on how to picture the design of these wheels, consider Devecka’s alternate translation of line 375: “a golden wheel beneath the base of each.” Wilcock, *Iliad XIII-XXIV*, translates: “He put…golden wheels beneath the base (i.e. on the legs) of each of them” (268). Mark W. Edwards, *The “Iliad”: A Commentary, Vol. V: books 17–20* (Cambridge: Cambridge Univeristy Press, 1991): “πυθμήν (375) here clearly = ’foot’” (190).
And silver-footed Thetis reached Hephaestus’ home, an imperishable, starry, brazen edifice, beautiful among the homes of gods, which he made himself, hobbling around on his little clubfeet. And she found him at work, sweating away, occupied around the bellows: for he was in the process of making twenty tripods, all at once, to set up around the wall of his well-built megaron. And he had made golden wheels for them, on each of their legs, so that they could enter automatically into the assembly of the gods and, even more amazing, could return themselves back home again. And, at this moment, they were almost finished, they just lacked their elegantly designed handles: Hephaestus was just putting on this finishing touch and was hammering in the bolts. All the time he was fashioning these with his knowing wits (ιδιωτίς πραπίδεσσι), the silver-footed goddess Thetis was standing nearby. But then beautiful Charis, dressed in a shiny veil, coming forward noticed her (she was the famous disabled god’s wife): and she shook Thetis’ hand and said to her: “What brings you to our home, Thetis, dear friend? You never used to visit us before. Please, follow me inside, so I can treat you as our guest.”

How can we best explain, in Homeric terms, a metal object that moves on its own? In a recent article, Alex Purves helps to frame the question:

Despite what is normally said about metal, therefore (that it is cold and fixed, unpliable once crafted), or about armor (that its key quality is its impenetrability, or that its primary significance in Homer is its ancestry), in these few passages [e.g., Il. 16.102–11] it has instead proven to have its own tendencies and vitality, exhibiting different aspects of speed, weight, and orientation, not according to its own individual properties but according to its interaction with several different materials and forces.68

The key phrase in this sentence is the last: to the extent that Homer’s metal objects ever seem to be alive, it is probably not because the metal has a life of its own. Although there is a variety of expressions that personify blades and spearpoints (e.g., “pitiless bronze,” νηλει χαλκο, Il. 4.348),

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67 Il. 18.369–87.
it remains disputable whether these are anything more than poeticisms to evoke the storm of weaponry on the battlefield.\(^6^9\) Is a spearpoint literally “eager to have its fill of human flesh” (ιεμένη χροὸς ἄμεναι ἄνδρομέσο, Il. 21.70; cf. Il. 11.574, 15.316–17), any more than “winged words” actually have wings? Without inclining towards full literalism, Purves’ view suggests that there is more than metaphor in such language, and that the warrior’s hand and his weapon share a kind of “kinship” imparted in the moment of the spear-thrust.\(^7^0\)

To take the most rationalizing view of Hephaestus’ automata, we should think that they operate like Homeric humans do—i.e., that they also need some kind of animating substance interfacing with a network of moving parts. To take a looser interpretation, we could view them less as independent beings and more as “living” implements, as extensions of Hephaestus himself. In the hands of a virtuoso craftsman or musician, an instrument becomes like a part of the artist’s body so that it even seems to take on a life of its own and to “respond” to the intentions of its master. We can say the same of prosthetic limbs and their intimate connection with the person who wears them.\(^7^1\) Likewise, on Purves’ reading of Homer’s “vibrant materialism,” there is nothing so special about flesh and bone as compared with iron and bronze. What matters is the totality of the

\(^{69}\) Cf. Kokolakis, “Homeric Animism,” on the general elusiveness of the question, within the various categories of “heaven, earth, sea, works of art and weapons” (91). Kokolakis discusses Aristotle’s view that such expressions as “δοῦρα...λλαμώμενα χροὸς ἄσμα” are mainly rhetorical devices (89–91), and frames the question as follows: “What can we think of such images of cannibalistic yearnings? Is it right to assert that they are consciously devised metaphors aiming at an illusion of life, in which neither Homer nor his audience believed? Or do these lines reflect current superstition or else preserve reminiscences of older legends of enchanted arms?” (108ff.).

\(^{70}\) Purves, “Ajax and Other Objects”: “The shading of body into thing, and vice versa, is easier to grasp if we avoid conceptualizing the human as an ‘individual’ in the sense of an embordered being with a clearly demarcated outside and inside, and instead think of him or her as one who is closer to the word’s earlier meaning of ‘undivided.’ That is, always in concert with the world through a series of open connections and entanglements” (93). As a way of describing the behavior of “force” or “energy” (for example, the transmission of ῥέμα through the medium of ἐθνος), these expressions represent early terms for projectile motion or action at a distance (cf. Il. 15.542–43: αἰσθήμα ἐς στέρνοι δέ θέρνημοι δέδωσαν μαμύλοσα / πρόσοσα ιεμένη). It is just as possible to cast such verses within a philosophical (or proto-philosophical) context as within a purely animistic or dynamistic one.

\(^{71}\) I here follow the lead of Bosak-Schroeder, Review of Gods and Robots: “A disability framework, with attention to the god’s disability and his creations as prostheses, would have enriched Mayor’s discussion of ancient armor, especially anatomical armor, as an enhancement to the body (¶ 5.” Cf. Purves, “Ajax and Other Objects,” 86–7.
organism that gives life to the moving parts. This interpretation does not necessarily conflict with the ones offered above, but it does add another dimension to them: Hephaestus’ machines are like an extrapolation of ordinary human prostheses, which in this case help the disabled god both within and outside his studio, including with the task of delivering and retrieving his cauldrons to and from the gatherings on Olympus. This relationship follows the same pattern as the hierarchy mentioned above, in which Paeon’s pharmaka are more potent versions of the substances available on earth. But the same principle also applies to the individual androids: like Ajax’s body armor, their golden material depends upon whatever inner spirit animates their movements, as well as upon the wishes of their creator.

Do Hephaestus’ Androids Have the Breath of Life?

What is the nature of the female androids’ “inner spirit”? By not answering this question, Homer puts them behind a veil of mystery. In fact, his language seems to sidestep the answers (whether consciously or not), and yet at the same time to give his audience the slightest hints that could lead one way or the other, depending on how we interpret them. What does it mean that Hephaestus’ golden attendants have νόος in their φρεσίν? Does that imply that they are conscious, or is “τῆς ἐν µὲν νόος ἐστὶ µετὰ φρεσίν” (“there is noos in their phrenes”) merely a way of describing the skills and practical knowledge that they possess (as elaborated in the following line: “ἀθανάτων δὲ θεῶν ἀπὸ ἑργα ἵσασιν”)? In other words, is νόος a statement about their abilities, or does it also reveal something about their inner mental life? The question is relevant to what kind of relationship we can imagine they have with Hephaestus. When he is not at work, could they be companions to

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73 Cf. Devecka, “Did the Greeks Believe in Their Robots”: “The substitutability of slaves and robots helps to elucidate a thing generally apparent in Greek philosophical accounts of slavery: namely, that slaves had somehow ‘fallen out’ of human society and even out of human nature” (63).
him? Do they help him pass the long hours he spends in his workshop? Could he have conversations with them (as an ὅρασις with an ὀρασιτής; what do they do with their ἀφόνη?), and perhaps amorous relations? Or, as suggested above, are they merely “living” organa, like the self-rolling tripods and self-blowing bellows, which help their master compensate for his physical disability? Or something in between?

Assuming that the androids are at least as conscious as Homer’s other characters, we still cannot tell much about the physiology responsible for their sense of awareness. Their νόος, like μένος (and other such terms),74 could refer to an activity instead of a physical substance.75 Translated as “intelligence,” “intention,” “mind,” or, perhaps, “consciousness,” this word is the closest the Homeric vocabulary gets to an entirely abstract psychological term. As such, the expression “τῆς ἐν μὲν νόος ἐστὶ μετὰ φρεσίν” may or may not imply something about the internal organs of these beings. The phrase μετὰ φρεσίν, in its literal definition, describes the location in the human body where this activity takes place: as discussed above, the φρένες are apparently “lungs.”76 Yet this language took on expanded (if not entirely “figurative”)77 meanings within epic language, so that this phrase does not always refer to the physical organ.78 “τῆς ἐν μὲν νόος ἐστὶ μετὰ φρεσίν” may simply mean “they have intelligence in their minds,” in which case the poet could use this phrase even for beings that do not literally have φρένες in their chests. The expression does not have to mean that Hephaestus’ attendants have mechanical lungs, or necessarily any internal structures at all. Could they, after all, be hollow, like the limbs and torso

74 On menos as “force” or “energy,” see Snell, Discovery of the Mind, 21. See also Onians, Origins of European Thought, 50–52, where Onians describes menos as “energy” but denies a distinction in Homer between substance and “energy”/”activity.”


76 Onians, Origins of European Thought, 10, 23ff.

77 On this distinction, see Clarke, Flesh and Spirit, 1–36.

78 One example of such an expression appears early in the Doloneia (Iliad 10.43–47: ἑπέδι Διὸς ἐτράπετο φρήν).
of a life-sized lost-wax bronze sculpture? Do they, therefore, stand outside the natural workings of the rest of the Iliadic cosmos?

To help answer these questions, Homer may provide a hint in one word used to describe the girls’ movements when helping Hephaestus across the floor of his studio: ἐποίνυεν. Its etymology has long been disputed, but there is a sound argument for identifying its root in πνέω, with a basic meaning of “puff, pant.” Willcock notes that the connotation of this verb seems to have evolved by the time of its Homeric usage: “The word seems originally to have signified ‘to breathe heavily’; but it is used in the Iliad with the meaning ‘to bustle about.’” Yet, assuming that the etymology is correct, if something of this verb’s original meaning survives in these passages, it would imply that the χρύσεαι νεήνιδες are breathing as they work. Moreover, it could mean that they are breathing hard as they struggle to support their master’s weight. We had just seen their master described in a way that emphasizes his bulky figure: “ἡ, καὶ ἀπ’ ἀκμοθέτῳ πέλωρ αἰθητόν ἀνέστη / χολεύων: ὑπὸ δὲ κνῆμα ῥώσοντο ἄραιαι” (“And the great looming figure stood up from his anvil, limping: and his shins wobbled feebly beneath him”). αἰθητόν, perhaps from ἂμι, also suggests that Hephaestus is panting from his toils—maybe the girls become

79 Il. 18.421.
80 For a summary of the controversy, see Onians, Origins of European Thought, 56–57. Onians agrees with the etymology discussed here. According to the other argument, “ποιπνύεων, it is urged, means ‘to bestir oneself, to hurry’, and is a reduplicated form of an original πνέων with the same meaning of rapid physical motion.” See also Clarke, Flesh and Spirit, 84–86: “Scholars have been surprisingly unwilling to accept that πένυμαι is the perfect middle of πνέω, ‘I breathe,’ but the identification makes straightforward sense.”
81 Autenrieth: “ποιπνύο (redup. from πνέω):... puff, pant, ‘bestir oneself,’ ‘make haste,’ Il. 8.219, Od. 20.149.” LSI only mention the other possible etymology (“perh. formed by redupl. from πνο-, cf. πένυμαι”), according to which this verb is not related to πνέω, “I breathe.”
83 The gods are heavy. For another passage that explicitly describes the weight of a god on a piece of machinery, see Il. 5.837–39, when Athena steps on board a mortal chariot stand: ἤ δ’ ἐς δίφρον ἐβάλυ την Διομήδεια δίον / ἐπιμεμαύθη θεά: μέγα δ’ ἐξράγη φήγινος ἀξίων / βριθοσύνη: δεινὴ γὰρ ἡ ἔρην θεόν ἀνύρια τ’ ἀριστον. Hephaestus has given his attendants σθένος for good reason (Il. 18.420).
84 Autenrieth: “ἀἰθητός: epith. of Hephaestus, πέλωρ αἰθητόν, ‘terrible; ‘puffing’ (if from ἂμι), Il. 18.410†. By some thought to be the same word as ἂθητος. See also Onians, Origins of European Thought, 52 (on the phrase “θάρρως ἂθητον” [Il. 21.394f]) and 57, n. 1 (πέλωρ ἂθητον, “apparently meaning ‘puffing monster’”). Edwards, The “Iliad”: A
somewhat winded along with him as they help him to and from the forge.\textsuperscript{85} The verb πυπνύειν, used especially of attendants,\textsuperscript{86} first appears in \textit{Iliad} 1.600 to describe Hephaestus’ movements that inspire his fellow Olympians’ hilarity. Presumably, he is stumbling around the dining hall in his eagerness to serve nectar to all his fellow gods, and he may be acting this way on purpose, in order to raise their spirits.\textsuperscript{87} It makes sense to think that he is breathing deeply all the while and, therefore, by comparison, that his maidservants do so as well when they must get beneath his shoulders. In other words, they also have some form of the “breath of life.”\textsuperscript{88}

\textbf{Conclusion}\

Part of the appeal of this question is that the more we look at the details, the more the answer eludes us. Looked at one way, the androids become something entirely different from their creator. As we have seen, lines 18.414–18 represent their golden surfaces and brisk movements alongside his perspiring body and bowed legs. Yet looking at it another way, we have also seen that this same language reveals an intimate similarity between them. The shared use of the verb πυπνύειν, for both the master and his servants, belongs to a pattern of mirrored language in which we can never tell how close the resemblance is. The vaguest hint that the androids might be breathing—panting, even—with effort again matches Hephaestus’ appearance as a πέλωρ αἵττων. But that

\textsuperscript{85} On this point, also see Willcock’s note on line 18.417: “Homer uses the same verb (ὄπω...ῥόουντα) for their movements as they support their master as he did for Hephaestus’ legs in 411” (\textit{Iliad XII-XXIV}, 268). Kirk’s commentary glosses πυπνόοντα in \textit{Il.} 1.599-60 as “hobbling” (Kirk, \textit{The “Iliad”: A Commentary}, 113), although Stephen Halliwell dismisses this reading as a mistake. Halliwell, \textit{Greek Laughter: A Study of Cultural Psychology from Homer to Early Christianity} (Cambridge: Cambridge University press, 2008), 62, n. 29.

\textsuperscript{86} See \textit{LSJ} s.v. πυπνύοι.

\textsuperscript{87} See Halliwell, \textit{Greek Laughter}, for Hephaestus as a “self-conscious gelotopoios, a ‘laughter-maker’ or jester” (63).

\textsuperscript{88} To imagine the golden servant girls à bout de souffle does somehow make them more endearing and gives them a spark of personality—these are not simply ‘robots.’ Mayor, \textit{Gods and Robots}, refers to a mention of Hephaestus’ golden maids in Philostratus’ \textit{Life of Apollonius} 6.11, which says that the craftsman god “made the gold breathe (τὸν χρυσὸν ἐμπνευσε ἐποίει)” (149).
phrase’s meaning is also obscure, as perhaps it already was in Homer’s time. The androids seem like girls (εἰούκοια, II. 18.418), but they are, nevertheless, not real girls; but what is the extent of that difference? Meanwhile, Hephaestus’ intelligent bellows stand nearby, waiting literally with bated breath for his next command.

There is a physical logic that governs the workings of the Homeric cosmos so that, starting from that basis, we can begin to situate Hephaestus’ automata within a “mechanistic” explanation. That we have trouble going further is what makes these objects θαῦμα ἰδέσθαι, according to ancient philosophical uses of the word. On the Aristotelian view, part of the thauma effect is in the tension between not understanding a marvelous event and desiring to understand it. This question is also near the center of aesthetic philosophy, in its attempt to account for both the pleasure and “pain” of observing something beautiful that is nevertheless out of reach. Understanding the nature of the thauma is one way of trying to close this “gap,” of assimilating the object with oneself. The Homeric style of narrating thaumata, partway towards explanation, leaves the audience hanging in that gap. To understand this dissonance is to appreciate how the Homeric tradition might have stimulated the early philosophers, some of whom adapted Homeric-style hexameters into a vehicle for expressing their ideas. Homer provides just a taste of a rational understanding of the marvels he describes, leaving the rest of the work to the most curious in his audience.

91 Ibid., 424.
92 See Tybjerg’s discussion of Aristotle’s Metaphysics I for the antiquity of the idea that thauma is a stimulus to recognizing one’s own ignorance, and therefore to philosophy, and how the Homeric epic could have played a part in that development in Greek intellectual history: “And a man who is puzzled and wonders thinks himself ignorant (when even the myth-lover is in a sense a philosopher, for myth is composed of wonders)” (Metaphysics I, 982b11–23, trans. W. D. Ross, quoted and modified in Tybjerg, “Wonder-Making and Philosophical Wonder,” 463).
Bibliography


