Ancient Greek doors and their humans

Sluiter, I.; Flohr, M.; Mols, S.T.A.M.; Tieleman, T.L.

CHAPTER 5

Ancient Greek Doors and Their Humans

Ineke Sluiter

1 Introduction

The long history of human technological invention is at the same time a history of human-thing interactions, meaning-making, and symbolism. The use of doors to separate outside from inside, to provide entries and exits, to exclude and to welcome, is a case in point (see fig. 5.1).[1] There can be no doubt that doors constitute a security-enhancing and protective technology, especially given their frequent accoutrements of bolts, locks, and keys.[2] Even if we think we are just looking at doors from the point of view of (technical) 'design', we need to acknowledge their intended use by and effect on humans, including such implied values as safety or coercion. Donald Norman, who elaborated the concept of 'affordances' coined by James Gibson, was intrigued by the problems doors could pose for people, given the common absence of any clear clues to anyone trying to get through one, on whether they would need to push, pull, or slide.[3] Doors engage us in a physical interaction of relevance to anyone interested in embodied cognition. 'Every morning, a door stands in my way', says Ruth Bielfeldt in a well-known paper on 'material things that

1 Oakley 2020, 8, on scenes of daily life on Athenian vases: 'Doors are a common architectural element shown, and a single one often serves two functions, as the place of departure and as the place to be entered'. Figure 5.1 is his figure 1.2 (2020, 9).

2 See Diels 1920 on ancient Greek doors and locks; Haddad 2016 on the evolution of door-locking mechanisms in the S.E. Mediterranean. In the 'Swallow Song' (*PMG* 848, 14–16), children who are trick-and-treating threaten to steal the door itself (or, alternatively, the doorpost, or the woman of the house; she's not that big, they think they can carry her off easily; —this is the domain of comic hyperbole) (ἢ τὰν θύραν φέρωμες ἢ τὸ ὑπέρθυρον / ἢ τὰν γυναῖκα τὰν ἔσω καθημέναν· / μικρὰ μέν ἐστι, ῥᾳδίως νιν οἴσομες). See Griffith 2000, who notes 15-cent.-BCE legal texts from the Hurrian city of Nuzi that actually contain provisions against the stealing of doors.

3 Gibson 1966 and especially 1979 ('The affordances of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or for ill' (1979, 127). Norman was interested in particular in potential for action: 2002, viii; see also 2002, 9–10 about affordances of doors (i.e., the properties determining how they can be used; their potential for doing things with and to them); 2002, 87–92 about 'the problem with doors'; for a more recent discussion and application of the concept, see Levine 2015, 6–11 (I'm grateful to Matthew Ward for this reference).

 | DOI:10.1163/9789004714915_006

FIGURE 5.1 (Attic red-figure chous) 'reveler, pounding door as woman with lamp inside apprehensively waits', ca. 430–420 BCE, NY, Metrop. Museum of Archeology, 37.11.19 Fletcher fund (in the public domain)

engage people in a physical way and, in doing so, prompt them to reflect on the bodily conditions of human perception, existence, and history'.[4] Restricting ourselves to a technical understanding of how ancient doors were constructed and used would deprive us of important insights into their entanglement with

4 Bielfeldt 2018, 420–421.

their human surroundings, the social construction of their meaning, and their role in the cultural imagination.

From the earliest Greek poetry that has come down to us, we find doors in very different contexts: an innovative and imaginative kind of door is ascribed to the divine realm in the *Iliad*, different types of doors unexpectedly form back-ground support for the narrative trajectory of the *Odyssey*, and in the Greek theatre, something rather resembling a revolving door might have been in use (or not, as it will turn out). In this chapter, I will be discussing these three case-studies, purposely highly different in nature (sections 2–4), with a particular focus on meaning-making, on the affordances of doors, and on the ways in which the familiar phenomenon of the prototypical door, which had been available for a long time, 'anchors' various innovations in the symbolic realm.

The use of the concept of 'anchoring' for this particular piece of technology shows that this chapter positions itself in the ambit of 'science, technology, and society' studies, and the 'social construction of technology' (SCOT), with its emphasis on the entanglement of humans, social structures, and things.[5] The concept of 'anchoring' has four major components: it is based on the assumption that in order to absorb whatever strikes us as '*new*' (1), we must be able cognitively to anchor, i.e., *connect* (2) it to something *familiar* (3), and this is studied on the level of *relevant social groups* (4).[6] We can be more precise about the 'familiar': this refers to what is in the 'common ground' of the communicative situation, 'the sum of [two or more people's] mutual, common, or joint knowledge, beliefs, and suppositions'.[7] Common ground encompasses 'cultural common ground' (culturally shared information), and 'personal common ground', information shared by some individuals. 'Cultural common ground' is the relevant form in this chapter. Everything that is part of the shared and remembered past is part of the cultural common ground and therefore suitable as an anchoring ground for new ideas or inventions. But it is also possible to use analogies to other domains of one's contemporary society in order to anchor something new, e.g., when defining a 'drone' (the new thing) as a 'flying computer' (where 'computer' functions as the anchor).[8] Anchoring is dynamic: something that initially may have required a familiar analogue itself, can later on provide conceptual stability to newer phenomena. That is why the prototypical doors mentioned above can function as the anchoring

5 SCOT goes back to the fundamental paper by Pinch and Bijker 1984. See also Bijker 1995.

6 See Sluiter 2017.

7 Clark 1996, 93; see Sluiter 2021, 244 with the other literature cited there.

8 Sluiter 2021, 248.

backdrop to more imaginative and innovative uses: they are the regular and familiar ones that most easily come to mind as the best example of a door.

2 Divine Doors: Automation

In the *Iliad*, we encounter the first automatic doors in the history of Western-European literature. When Hera and Athena decide to take action and help the embattled Greeks, Athena dons her armour, and Hebe prepares their flaming chariot and harnesses a team of horses. Hera takes the reins, cracks the whip, and the doors of heaven open spontaneously to let them through.

> And of their own accord (automatically) the gates of heaven bellowed,
> The gates kept by the Horai,
> To whom great heaven and Olympus are entrusted,
> To either open the dense clouds or close them.
>
> αὐτόμαται δὲ πύλαι μύκον οὐρανοῦ, ἃς ἔχον Ὧραι,
> τῇς ἐπιτέτραπται μέγας οὐρανὸς Οὔλυμπός τε,
> ἠμὲν ἀνακλῖναι πυκινὸν νέφος ἠδ' ἐπιθεῖναι.
> *Il.* 5.749–751

There is some (quite forgivable) unclearness in this text about the exact location of the doors. Mount Olympus and heaven are sometimes (as here) equated, sometimes not quite, when one is halfway the other.[9] In this case, the goddesses are finding Zeus after their ascent to the highest point of the Olympus, preceding their descent to Troy, i.e., they are driving *in* before driving *out*.[10] This is not science fiction (in the sense that the narrator would be imagining something that could one day be available to humans).[11] This is the cultural imagination hard at work in shaping the divine realm, where gates

9 That the terms refer to the same location here is clear from the hendiadys in 5.750, marked by τε. On this issue, cf. Sale 1984.

10 Mendelsohn 2015, 1 has noticed the ambiguity and speaks about going 'in or out', further pointing out that Homer seems to be anticipating the automatic garage doors by over two millennia; see Mayor 2018, 134. I thank Prof. Irene de Jong for discussing the spatial arrangements in this passage with me.

11 See Berryman 2003, 351f. and 356 on the distance separating mythological accounts from 'entertain[ing] the idea that automata could be constructed by technological means' and on 'imagination divorced from interaction with real technology'.

consist of clouds that can be opened and closed. The goddesses pass these doors in their chariot.

How do we know, apart from the fact that we are told? The strongest anchoring feature of this passage is the sound made by the gates when they open: they groan or creak. This is not to be taken as a sign of a poorly performing Olympic maintenance department, it simply means that the door is indeed opening, or even: that the door is actually there. Creaking is a general feature of ancient doors, and the poet can use it in this passage, consciously or not, to alert us to a virtually invisible presence.[12] Sometimes Homeric doors bellow like a bull.[13] In ancient comedy, reporting that one hears the door is used invariably to call attention to the fact that it is opening and a character is about to enter the stage.[14] In Euripides' tragedy *Hercules Furens*, Megara relates how her children were missing their famous father, and her tell-tale example is that whenever the doors were creaking, everyone would jump up and rush to see whether it might be him.[15] And in a famous Athenian court case (dating to the fourth cent. BCE), the husband of an adulterous woman realizes with hindsight that the creaking of his door in the middle of the night meant his wife had gone out for a secret rendezvous, although she had offered a different explanation at the time.[16]

Imagining the possible is always anchored in the actual.[17] In this case, the imaginative and creative idea of automatic doors is anchored in a form of sensory feedback familiar from the daily world of the Greeks.[18] Noiselessness does not come into it; a noiseless door simply does not meet the standard of identity for a humanly understandable door yet. And this door is ultimately there for

12 Norman 2002 (1988), 102–104 on 'using sound for visibility': 'Sometimes things can't be made visible. Enter sound: sound can provide information available in no other way'.

13 *Od.* 21.48–49 τὰ δ' ἀνέβραχεν ἠΰτε ταῦρος/ … τόσ' ἔβραχε καλὰ θύρετρα ('they bellowed like a bull … that is how loudly the beautiful doors bellowed'. The verb μύκον used in our passage (*Il.* 5.749) is also a term for the lowing of cows. Elsewhere, it is the divine weight of Athena that makes a human chariot groan loudly (*Il.* 5.838–839).

14 See, e.g., Ar. *Eq.* 1326 καὶ γὰρ ἀνοιγνυμένων ψόφος ἤδη τῶν προπυλαίων ('for I can already hear the outer door opening'; *Ran.* 605 ὡς ἀκούω τῆς θύρας καὶ δὴ ψόφον ('for, look, I can hear the creaking of the door'); Men. *Pk.* 316 ἀλλὰ τὴν θύραν ψοφεῖ τις ἐξιών ('but someone is coming out, they are making a noise at the door'); *Fr.* 860–861 l. 2 ἐψόφηκεν ἡ θύρα, τίς οὐξιών; ('the door creaked, who is coming out?');

15 Eur. *HF* 77–78 ὅταν / πύλαι ψοφῶσι, πᾶς ἀνίστησιν πόδα.

16 Lys. 1.14 ἐρομένου δέ μου τί αἱ θύραι νύκτωρ ψοφοῖεν, ἔφασκε … ('when I asked why the door creaked in the night, she said …' (that she needed to go to the neighbours in order to relight a lamp that had gone out)).

17 See Sluiter and Versluys 2022.

18 This is, of course, to be distinguished from the poetic trope of the 'speaking door', for which see Wessels 2024.

the enjoyment of humans. There is another sensory and embodied anchoring effect in the reference to the concrete actions of opening and closing the door, on two levels. First, such action words have a role in enactive cognition and they make the story more immersive.[19] And, secondly, this opening and closing of the cloud-gates may be anchored in the experience of the seasonal visibility or obscurity of Mount Olympus, for the Horai are also the embodiment of the seasons. Here, too, there is a hidden human perspective, for it is primarily human beholders who look up to heaven through the clouds.

The automatic doors of the Olympus belong in a discourse about the divine, where everything is golden, and every action is performed effortlessly and easily (ῥᾳδίως). The automatic doors separate the human and divine worlds. And they creak open, for they are doors, however fictive. This, then, is anchored imagination, not so much of future-oriented technology, but of the world of the gods and how we can represent it as and for mortal people.

The connection between the divine and automatically opening doors would become a staple of Greek cultural common ground. An ancient commentator on the *Iliad* passage understood the phenomenon as a way to indicate the prestige of the goddesses.[20] The spontaneous opening even of human doors could itself be part of an epiphany, a sign that the gods were miraculously present.[21] In the *Iliad*, an example is Achilles' immediate understanding of the fact that Priam must have had a divine escort when he came to see him: otherwise he could have never got through the quite impressive doors on his shelter.[22] We find similar points in Euripides' *Bacchae*, and in Hellenistic poets, such as Theocritus and Callimachus. As Heather White puts it: 'every Hellenistic reader knew that doors unfailingly and automatically opened whenever a god (or goddess) was near them'.[23]

---

19 See Grethlein and Huitink 2017.

20 Σ bT on *Il.* 5.749b ἐμφαίνεται δὲ καὶ τὸ ἀξίωμα τῶν θεῶν, εἴγε ἑκοῦσαι αἱ πύλαι εἴκουσιν αὐταῖς.

21 Documented extensively in Weinreich 1929.

22 *Il.* 24.566–567; as the audience of this scene, we know that Achilles' surmise is correct. In 24.446 Hermes had opened the doors to the Greek camp, and in 24.448–457 there is an elaborate description of the doors to Achilles' abode, which only Achilles could open by himself, whereas that would otherwise require three men, cf. Lynn-George 1988, 234–236; 1996, 11–13; Hermes, of course, opens them without a problem. Cf. *Od.* 6.18–20.

23 White 1977, 136 on Theoc. *Id.* 24.15–16, where Hera's snakes have no trouble entering Heracles' bedroom; see further Williams 1977; McKay 1967 on Callimachus' *Hymn to Apollo* 1–7. He lists (1967, 188) the words used to indicate such spontaneous openings and their uncanny nature: αὐτός, αὐτόματος; εὐθύς, ἐξαπίνης. On earlier texts, see Verdenius 1977 on Parmenides B1, 17–18 (the Doors of Night and Day, which need unlocking); Eur. *Ba.* 447f. on the miraculous liberation of the captive Bacchants: αὐτόματα δ' αὐταῖς δεσμὰ

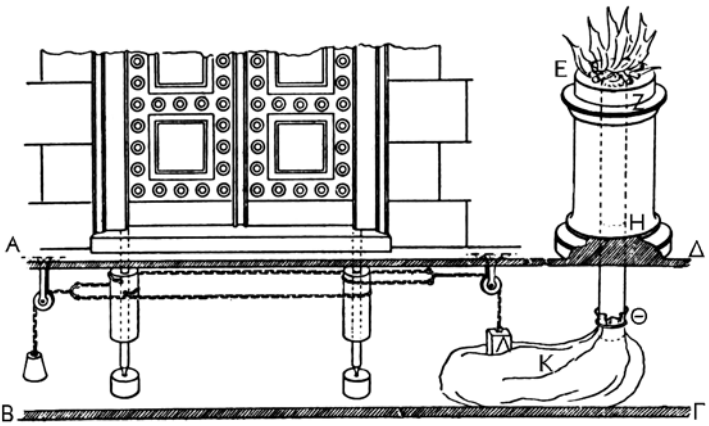

FIGURE 5.2 Illustrating Hero's design for an automatically opening door; Bur 2016 (her figure 20, adapted from Schmidt 1899, 181, his figure 40)

Some eight centuries after the *Iliad*, Hero of Alexandria (first century CE) used contemporary technology to create a working version of an 'automatic door'.[24] In his handbook on *Pneumatics*, there are two sets of building instructions (see fig. 5.2, for a reconstruction on the basis of one set). Hero describes the temple doors he designed as follows: 'When a sacrifice is being burned, the doors open automatically (αὐτομάτως ἀνοίγεσθαι) and when the sacrifice is extinguished, they close again'.[25] There is no doubt that the technological understanding going into these and other devices is advanced. Hero's device involves the expansion of heated air, and a whole system of weights, chains, and pulleys (in one of the two designs, he also uses water power). This has led to a long-standing debate, for which I refer to the introduction to this volume, about a presumed 'blocage': the question of what obstacles prevented ancient technology, which was simply there and available, from being used more widely and productively, especially in an economic/industrial way.[26] This idea has now been largely discredited because it imports a certain normative idea

διελύθη ποδῶν / κλῆδές τ' ἀνῆκαν θύρετρ' ἄνευ θνητῆς χερός ('the chains on their feet came loose spontaneously, and the bolts opened the door without human hand').

24 Michiel Meeusen also discusses the *Iliad* passage and Hero's design in his unpublished 2020 paper, and equally emphasizes its situatedness 'in cultural and social webs of history'. I thank him for sharing the preprint with me.

25 Hero *Pneum.* 1.38–39 Schmidt.

26 Asper 2013, 412; Bur 2016, chapter 1, describing the debate in the sixties and seventies of the last century between Finley 1963 ('blocage'), and the counter arguments by Edelstein 1967 and Dodds 1973. See also Greene 2000.

about what technology *should* be for (economic growth), without taking into account relevant ancient contexts of use. Given the theoretical framework of this chapter, we are clearly more in sympathy with attempts to understand the socio-technical ensembles we discern in classical antiquity 'on their terms'.[27]

Tatiana Bur, for instance, explains the human context against which we should read this Heronic project. Hero's automatically opening temple doors are part of a *miniature* version of a temple complex, to be put inside a real temple and to be activated there. The background is thus one of creating a sacred environment and an atmosphere of religious wonder and awe (θαῦμα).[28] Multiple scholars have argued that doors and thresholds structure the way we experience spaces, that they are the markers of significant moments of transition, and that this is true in particular for sacred thresholds.[29] The symbolic value of doors, again especially in a religious context, has long been recognized. In 1911, Ogle provided an inventory of superstitions connected with the threshold and the door. Among other things, the threshold is where spirits gather, and in the comic playwright Menander a character swears 'by the door'.[30]

Hero's opening doors are a symbolic representation, but also an enactment through mechanical means of a theophany: they represent the gods' actual presence and their willingness to accept the sacrifice. His *model* of an automatic door does not function as a door, and it does not anticipate an automatic door that human beings might want to use, one that opens on anyone's approach: no one exits or enters the temple, but an open door is a welcoming gesture with which the god shows acceptance of the sacrifice.[31] Technology is anchored and embedded in religion here, and in a long cultural tradition, going back all the way to Homer's *Iliad*.

27 See particularly Flohr 2016.

28 For Hero's striving after the effect of *thauma*, see Tybjerg 2003. For *thauma*/wonder in Hellenistic poetry and art, see Zanker 2004. On creating a sacred environment, see Miles 2016.

29 See, e.g., Van Opstall 2018 with bibliography.

30 Ogle 1911, 251 on superstitions connected with the threshold; 1911, 261 on thresholds as the locus of prophetic inspiration; 1911, 262 as the place where spirits gather; 1911, 264 on swearing by the door in Menander (*fragm.* 801 Kock).

31 See Versluys and Woolf 2021, 215–219 on the affordances of objects, and the way in which new objects and materials change religious practices. *Automata* are one of their cases in point.

3 Doors and Narrative in the *Odyssey*

3.1 *Hospitality*

It is well-known that the theme of *xenia* or hospitality permeates the *Odyssey*.[32] In practical terms, one could rephrase this as a pervasive interest in who gets the right to enter and who is kept out, who is admitted and kept inside with rather too much enthusiasm, who is locked inside and not allowed to leave. The theme is sounded right from the first book, when Athena arrives in the form of Mentes, and waits patiently on the threshold of the court, at the outer doors (ἐπὶ προθύροις), which is the right thing for a guest to do. Telemachus is annoyed when he notices him and realizes that a stranger has been kept waiting at the door.[33] The corollary to a guest waiting at the door is the effort of the host to make him welcome straightaway.

Lateiner formulates this theme in terms of 'proxemics' (the symbolic use of space), and states that '[t]he *Odyssey* deploys space and the control of delimited territory as a semiotic code that shapes its plot' (1992, 137). For us, the important thing to note is obviously the role of doors in this context, as a logical anchor in the cultural common ground. In that sense, it is significant that the ultimate transgressor of hospitality, the Cyclops, uses the monstrous boulder serving as the door to his cave not just to keep his sheep inside, but also Odysseus and his crew.[34] The rock is called θυρεός (door stone) or simply πέτρη 'rock'), which he can 'close' (ἐπέθηκε, the normal term for closing a door). It would take twenty-two four-wheeled wagons to move it. Odysseus realizes there is no way for him and his men to dislodge it; they have to trick the Cyclops himself into doing so.[35] The material arrangements in the Cyclops' cave underline how far from the civilized world they have come.

The problem at Circe's residence is almost the opposite. Her hospitality extends rather beyond what would be desirable from the point of view of her guest, although it starts misleadingly well with some prompt door-opening. The group of explorers Odysseus has sent ahead, stand at the outer doors (ἐν προθύροισι) and hear the goddess sing inside. They call out, she immediately

32 See Reece 1993.

33 Athena ἐπὶ προθύροις, *Od.* 1.103; Telemachus realizing the lack of proper hospitality, 1.119–120; on the whole scene, see Mari 2016; Lateiner 1992, 142.

34 Notice that the cave is open when Odysseus and his men arrive. They are themselves transgressors here when they simply go inside to take a look (*Od.* 9.218).

35 *Od.* 9.240–243 αὐτὰρ ἔπειτ' *ἐπέθηκε θυρεὸν μέγαν* ὑψόσ' ἀείρας, / ὄβριμον· οὐκ ἂν τόν γε δύω καὶ εἴκοσ' ἄμαξαι, / ἐσθλαί, τετράκυκλοι, ἀπ' οὔδεος ὀχλίσσειαν· / τόσσην ἠλίβατον *πέτρην ἐπέθηκε θύρῃσιν*. Odysseus' realization of the problem, 9.304; opening by the Cyclops himself, 9.416.

opens the door and invites them in.[36] Eurylochus is suspicious and hangs back, but the others go inside where they are offered seats, food, and drink—with an admixture of drugs—and are promptly changed into swine.[37]

At the royal palace of the Phaeacians, Odysseus stands at the threshold,[38] from which he (like Athena arriving in Ithaca) can observe the incredible riches of the whole estate. This includes golden gates with silver doorposts, and gold and silver dogs as guardians.[39] However, when he has observed the whole lay-out of the place, Odysseus can simply step over the threshold and go inside to find the King and Queen; Athena has helpfully covered him in a fog that makes him invisible. Alcinous' palace is the opposite extreme of the cave of the Cyclops, and this includes their respective doors: the presence of doors is to be expected, their respective nature is new information, and their detailed description supports the story line.[40]

3.2 *Doors and Action*

Doors and their affordances are a material and meaningful anchor for representing the structure of space and issues of access and control. It should perhaps not come as a surprise then that when Odysseus finally finds himself back home and gets ready to kill the suitors, the action-packed drama is bound up, not just with endless killing, but, precisely, with doors and the actions they afford.

When planning his revenge, Odysseus has given instructions to remove all weapons from the hall, and Eurycleia locks them away with her key (19.30). There is an elaborate description of the doors to the special room that Penelope opens (while they creak loudly) with a key in order to take Odysseus' bow to

36 *Od.* 10.230 ἡ δ' αἶψ' ἐξελθοῦσα θύρας ὤϊξε φαεινάς.

37 *Od.* 10.220–240; the scene, including the opening of the doors, is repeated in Eurylochus' report, 10.256; 10.312 Circe opens the door to Odysseus himself; 10.389 she opens the door to the pig-sty in order to set the men-turned-swine free. Hers is the largest number of door openings in the *Apologoi*.

38 Thresholds are always important marked points of transition in Odysseus' journey (cf. De Jong 2001 on *Od.* 17.339–341, where Odysseus enters his own palace for the first time; she also refers to the episode in the land of the Phaeacians, and to *Od.* 10.62–63, in the land of the Aeolians.

39 Cf. Goldhill 1988, 11 for the role of guardian dogs, and the echo between this scene and the encounter with Odysseus' old dog Argos in Ithaca. I thank Matthew Ward for this reference and the observation in the previous note.

40 Golden doors, *Od.* 7.88; stepping over the threshold, 7.135. No mention is made of 'opening' the doors. However, Odysseus' sudden appearance, which must have resembled a theophany, puts everyone present in a state of *thauma* (7.145). On Odysseus' entry and the role of the Queen in this scene, see Wohl 1993.

the suitors for the contest she has devised (21.42–50). Odysseus makes himself known to the cowherd and the swineherd right outside the doors of the megaron (21.190) and explains his plan: it involves closing doors (κληῖσαι μεγάροιο θύρας, 21.236) so that none of the suitors can escape. The doors of the court must also be closed and locked (21.240–241). All these plans involving action with doors are executed in rapid succession: the swineherd orders Eurycleia to close the door of the megaron (21.381–382) and that is what she does (21.387). Philoetius closes the door of the court and ties the doors shut (21.389–391). Only then does Odysseus take his masterful turn in the bow contest.

Then it is time for the revenge itself: with a leap Odysseus takes up a strategic position on the threshold (ἅλτο δ' ἐπὶ μέγαν οὐδόν, 22.2), which gives him control over the entrance/exit, and makes his first kill.[41] The suitors realize they can only escape by dislodging Odysseus from his position at the door.[42] Telemachus is dispatched to fetch more weapons: he must hurry, for Odysseus realizes that all by himself he can only hold that crucial door for so long.[43] Telemachus returns quickly, and they arm themselves. Just in time, Odysseus realizes there is also a backdoor that needs to be watched and he dispatches the swineherd to do so. Just in time, since one of the suitors also realizes its existence, but it's too late: that door can easily be defended by one man. However, what's worse is that Telemachus turns out to have forgotten to close the door to the room where all the armour is stored, thus enabling the dangerous situation in which the suitors now also have weapons. Telemachus has to issue emergency orders to remedy the issue of access.[44]

Clearly, there is a lot of door drama going on here, based on a shared realization of characters and audience of the importance of control over entrances,

41 Book 22 is a very good example of immersive story-telling; our enactive cognition is triggered by the action words, many of which also involve doors. See Grethlein and Huitink 2017 (and p. 52 above).

42 Speech by Eurymachus, *Od.* 22.75–76: 'let's all together go for him, to see whether we can thrust him away from the threshold and the doors' (ἐπὶ δ' αὐτῷ πάντες ἔχωμεν / ἀθρόοι, εἴ κέ μιν οὐδοῦ ἀπώσομεν ἠδὲ θυράων). This is put into practice by Amphinomos, who attacks 'to see whether Odysseus would give way to him away from the doors' (22.91 εἴ πώς οἱ εἴξειε θυράων).

43 *Od.* 22.106–107, Odysseus speaking: 'Run and fetch them while I still have arrows to defend myself, that they don't thrust me from the doors, for I'm by myself' (οἷσε θέων ἦός μοι ἀμύνεσθαι πάρ' ὀϊστοί, / μή μ' ἀποκινήσωσι θυράων μοῦνον ἐόντα).

44 The backdoor (ὀρσοθύρη), *Od.* 22.126–130; suitors discussing its possible use, 22.131–138. Suitors getting access to weapons, 22.139–146; Telemachus acknowledging he left the door ajar, 22.153–156 (θαλάμοιο θύρην πυκινῶς ἀραρυῖαν / κάλλιπον ἀγκλίνας); ordering to close it, 22.157 (ἀλλ' ἴθι, δῖ' Εὔμαιε, θύρην ἐπίθες θαλάμοιο). The door is closed properly at 22.201. The story would be helpful to any parent yelling 'close the door' at a teenager.

access, exits, escapes. Doors serve as anchors of the narrative action by virtue of their role in establishing who controls space and through the actions they afford.[45] Affordances of doors are in the communicative common ground.

4 A Disappearing Revolving Door: the *Ekkuklêma* in the Greek Theater

My final case study involves a comparison between a modern and an ancient structure, illustrating how new types of doors are (only) conceived in specific socio-cultural circumstances. It also demonstrates how our own familiarity with such structures can provide a false anchor in how we perceive and interpret structures from classical antiquity. I am speaking of the mechanical device of the *ekkuklêma* or 'roller-outer' used in Athenian theatrical productions and of the modern 'revolving door'. I will resume an earlier discussion here, but add an important recent insight that demonstrates the relevance of considering technology in its sociocultural context, as a socio-technical ensemble or assemblage.[46]

Conventionally, in a Greek tragedy, performed in the context of a religious festival, certain actions would not be shown on stage, but were imagined as having happened off-stage or inside the palace or house represented by the stage building, for instance murders or suicides. If one wanted to show the *result* of such actions to the audience, one used this device.[47] It was a wheeled platform on which whatever needed displaying to the audience could be arranged back-stage and then wheeled out in a straight motion. However, an alternative form, in which the platform would be a revolving one, has also been widely accepted as a possibility (see fig. 5.3). While there are clear differences with revolving doors (in particular the platform itself), the reconstructed technical plan also shows striking similarities (see fig. 5.4). In thinking about sociotechnical assemblages, I used this similarity for a thought experiment, to discuss the question of whether the Greeks had actually invented the revolving door, rather than the man who was given a place in the Inventors Hall of Fame

45 The situation of the suitors, held captive in the hall, brings back echoes of the situation in the Cyclops' cave, with Odysseus unexpectedly cast in the role of the Cyclops (see Brelinski 2015). A similar reversal is brought out by the fisherman simile, where Odysseus takes the role of Scylla (see Sluiter 2014).

46 Sluiter 2017, 24–27.

47 The contraption could also be used self-referentially and metatheatrically in comedies (see Casanova 1997 for an extensive discussion of all the available evidence).

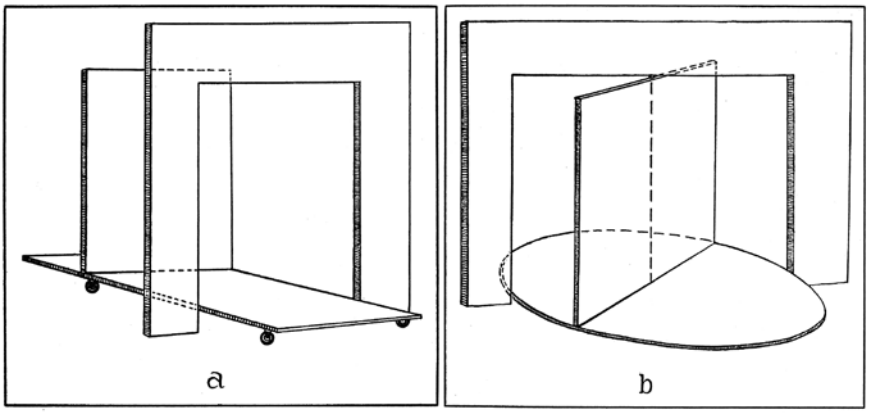

FIGURE 5.3 Two reconstructions of the ekkuklêma; 'revolving' type on the right (after A.C. Mahr, New York 1938, *Origin of the Greek Tragic Form*. New York 1938, fig. 27a–b)

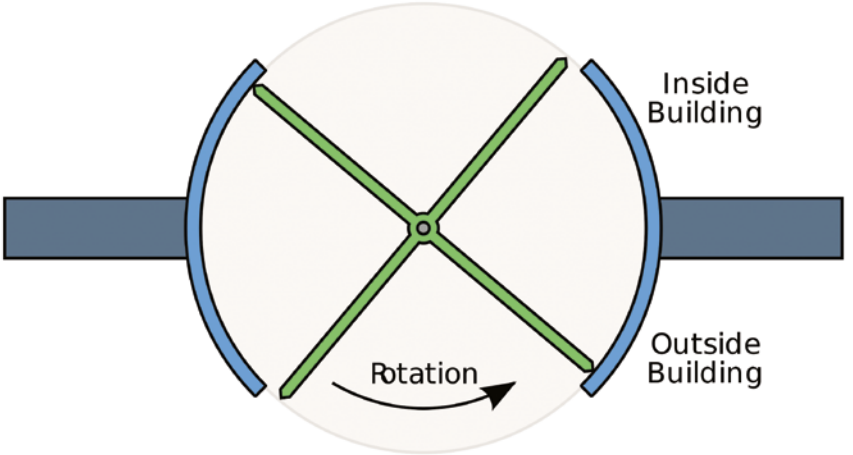

FIGURE 5.4 Design of revolving door (cf. Sluiter 2017, fig. 5b; source: Wikimedia, Life of Riley. Revolving door Plan View. CC-BY-SA 3.0)

for it, Theophilus Van Kannel (fig. 5.5). The (still correct) answer I provided at the time was a resounding 'no'.

The invention of the revolving door in late-19th-century Chicago belongs in the context of a highly specific 'sociotechnical assemblage'.[48] Department stores were invented, with frequent comings and goings of clients. They were

48 Jarrahi and Sawyer 2019.

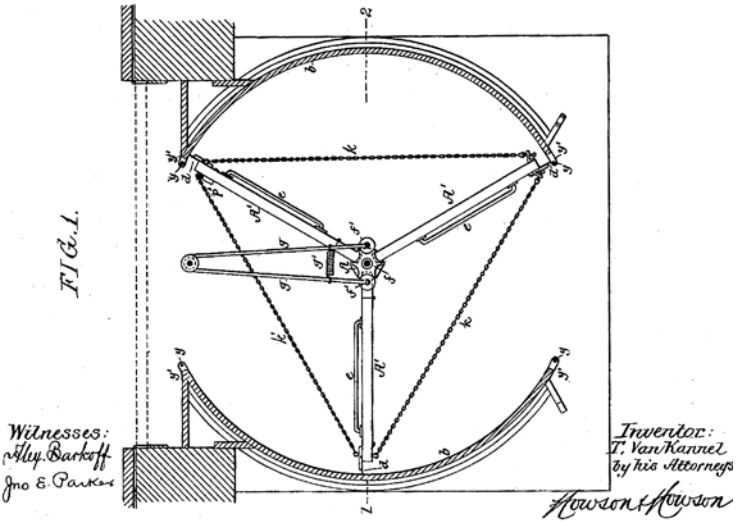

FIGURE 5.5 Patent drawing of the revolving door by Theophilus Van Kannel (Augustus 1888)

located in high-rise buildings, skyscrapers, with elevators that created a piston effect: air would be pushed down and out, and this meant that regular 'swinging' doors would be pushed open every time. And Chicago is cold. In Athens on the other hand, the recent invention of the theatre needed a very different thing, a contraption one could use to show the inside of a building to the audience in the theatre. The *ekkuklêma* simply never was intended or conceptualized as a technology for entering or exiting a building. It is not a door and is never called one; neither is it a failed innovation just because it did not evolve into a revolving door. Technology must be interpreted in its proper context of use.

There is reason however, to be suspicious even of this line of argument, since it still assumes that the 'revolving' reconstruction was an option (even dismissing the notion of 'door'), while it never discussed how the *ekkuklêma* itself might have been anchored in its ancient context of use. The 'revolving' interpretation was based on several ancient texts that talked about this piece of theatre equipment 'being turned' (*strephesthai*). Since this tied in with a known object in the modern world (the revolving door), at least a vestigial form of teleology (and unwarranted modern anchoring) may have influenced interpreters, emphatically including the present author (I take the blame for having made the comparison with the revolving door explicit, but the familiarity of the revolving door may have made the 'revolving' construction an obvious possibility, and it may have prevented scholars from raising objections to it).

FIGURE 5.6 Modern reconstruction of a *stropheion* (Casanova 2017, 9)

However, in a recent paper, Casanova (2017) studied the working of the *ekkuklêma* afresh, revisiting and reinterpreting all the relevant ancient texts.[49] In Casanova's view, these texts refer to a technique that was already well established in this period, the use of a winch or windlass, a στροφεῖον, operated by turning its barrel by means of a crank (in circular motions), pulling tight the ropes attached to the wheeled platform, and thus moving it forward (for a modern example, see fig. 5.6). While several texts do speak about the *ekkuklêma* 'being rotated (or turned) out' (always in the passive mood), this should be understood as meaning that the platform was set in motion by rotating the crank on the *stropheion*.[50] One very attractive aspect of this proposition, is that it comes with an immediate understanding of how well-anchored the

49 I thank Janric van Rookhuijzen for bringing this paper to my attention.

50 See Casanova 2017, 10 for the point that the term *ekkuklêma* itself does not imply a rotating motion either: the *kukl-* part refers to the fact that is was set 'on wheels'; it is a machine on wheels that can move something 'out' (i.e. on stage). One illustrative text discussed (2017, 15) is a scholion on Clem. Alex. *Protrept.* 2.12.1: ἐγκύκλημα ἐκάλουν σκεῦός τι ὑπότροχον ἐκτὸς τῆς σκηνῆς, *οὗ στρεφομένου* ἐδόκει τὰ εἴσω τοῖς ἔξω φανερὰ γίνεσθαι ('they call "*ekkuklêma*" [Casanova demonstrates that the spelling variant can be ignored] a machine on wheels, positioned outside of the theatre building; when it is turned out [by turning the *stropheion*], what is inside [i.e. backstage] is made visible to those outside [i.e., the theatre audience].

ekkuklêma must have been for the theatre technicians: the *stropheion* was used in the context of building, transporting heavy weights, and for ships.[51] It was simply reappropriated in a different (and new) domain: that of the theatre.

5 Conclusion

As we have seen, even a technical object as (relatively) simple as a door is best studied as part of a socio-technical assemblage. Doors can represent values (such as safety and security), they structure spaces, and entering or exiting them constitute meaningful moments of transition. Whoever controls the door can keep things and people inside or out. Opening doors and closing them, or forgetting to close them, can initiate various types of narrative scenarios.

Imagining the divine realm and human interactions with the gods can use the familiar furniture of human life as a form of anchoring. The innovative automatic doors of Olympus are anchored for a human audience in a familiar property characteristic of all doors: the noise they produce. The technical realization by Hero of miniature temple doors that apparently open spontaneously (although of course in fact there is a mechanical explanation) belongs in a context of producing a sacred environment characterized by awe and wonder. The anchoring is religious, and of course there is the cultural common ground of Homer.

In the *Odyssey*, the different uses made of doors serve to emphasize and make concrete and palpable the stories about failed, excessive, or successful execution of *xenia*-scenarios. We also saw how in the action-packed and exciting scene of the killing of the suitors, doors function as useful anchors because of their familiar affordances: the audience will immediately grasp their importance in gaining or preventing access and control, and realize the potentially dramatic consequences of leaving doors open when you shouldn't.

Finally, the only too familiar modern phenomenon of a revolving door may have stood in the way of a correct understanding of an ancient piece of theatre equipment. While the *ekkuklêma* was certainly new in the context of the theatre, it was most likely anchored in a familiar machine for moving heavy weights (in this case a wheeled platform). The *ekkuklêma* was anchored in more than one way then, for different groups. Firstly, for the Athenian citizens who

51 Casanova 2017, 9 collects the evidence for the use of these techniques, including Hdt. 7.36 on the construction of the ship-bridge over the Hellespont.

constituted the audience in the theatre, there must have been widely *shared values* about what could be shown in performance on stage, and in particular, what actions of violence or bloodshed should not be shown in a theatric festival dedicated to a god. At the same time, there was a *theatrical need* (maybe primarily for the author) to let the audience at least see the results of actions that had taken place off-stage; this would have corresponded to a shared desire in the audience. And finally, for the technical crew, the *technical realization and operation* of the *ekkuklêma* would have been straightforward and easily manageable because it was based on a technique that had long been available. This, then, is another example of the importance of the socio-technical assemblage: possibly wrongly (anachronistically) anchored by and for modern scholars, perfectly anchored in its own context.

Acknowledgements

The title of this chapter was inspired by Versluys and Woolf 2021. I thank Bob Corthals, Miguel John Versluys, Matthew Ward, the editors of this volume, and the participants of the 'Anchoring Technology' conference for their helpful comments.

References

Asper, Markus, 'Making up Progress—in Ancient Greek Science Writing', in: M. Asper (ed.), *Writing Science. Medical and Mathematical Authorship in Ancient Greece*. Berlin-Boston, 2013, 411–430.

Berryman, Sylvia, 'Ancient Automata and Mechanical Explanation', *Phronesis* 48 (2003), 344–369.

Bielefeld, Ruth, '*Candelabrus* and Trimalchio: Embodied Histories of Roman Lampstands and their Slaves', *Art History*, special issue: *The Embodied Object in Classical Antiquity* 41 (2018), 420–443.

Bijker, W.E., *Of Bicycles, Bakelites, and Bulbs*. Cambridge MA, 1995.

Brelinski, T., 'Medon meets a Cyclops? *Odyssey* 22.310–80', *Classical Quarterly* 65 (2015), 1–13.

Bur, Tatiana, *Mechanical Miracles. Automata in Ancient Greek Religion*. Diss. Univ. of Sydney, 2016.

Casanova, A., 'La macchina teatrale chiamata *ecciclèma*', *Prometheus* 43 (2017), 3–42.

Clark, Herbert H., *Using Language*. Cambridge, 1996.

Diels, H., 'Antike Türen und Schlösser', in: H. Diels, *Antike Technik. Sieben Vorträge*. Leipzig-Berlin 1920², 40–56.

Dodds, Eric R., 'The Ancient Concept of Progress', in: E.R. Dodds (ed.), *The Ancient Concept of Progress and other Essays on Greek Literature and Belief*. Oxford, 1973, 1–25.

Edelstein, Ludwig, *The Idea of Progress in Classical Antiquity*. Baltimore, 1967.

Finley, Moses, *The Ancient Greeks*. London, 1963.

Flohr, Miko, 'Innovation and Society in the Roman World', *Oxford Handbooks Online*. Oxford, 2016. https://doi.org/10.1093/oxfordhb/9780199935390.013.85.

Gibson, James J., *The Senses Considered as Perceptual Systems*. London, 1966.

Gibson, James, J., *The Ecological Approach to Visual Perception*. Boston, 1979.

Goldhill, S., 'Reading Differences: The *Odyssey* and Juxtaposition', *Ramus* 17 (1988), 1–31.

Greene, Kevin, 'Technological Innovation and Economic Progress in the Ancient World: M.I. Finley Reconsidered', *The Economic History Review* 53 (2000), 29–59.

Grethlein, J. and L. Huitink, 'Homer's Vividness: An Enactive Approach', *Journal of Hellenic Studies* 137 (2017), 67–91.

Griffith, R. Drew, 'Tricks on Ancient Rhodes', *Athenaeum* 88 (2000), 276.

Haddad, Naif A., 'Critical Review, Assessment and Investigation of Ancient Technology Evolution of Door Locking Mechanisms in S.E. Mediterranean', *Mediterranean Archaeology and Archaeometry* 16 (2016), 53–74.

Jarrahi, M.H. and Sawyer, S., 'Networks of innovation: the sociotechnical assemblage of tabletop computing', *Research Policy* 48S (2019), 100001. https://doi.org/10.1016/j.repolx.2018.100001.

Jong, I.J.F. de, *A Narratological Commentary on the* Odyssey. Cambridge, 2001.

Lateiner, D., 'Heroic Proxemics: Social Space and Distance in the Odyssey', *Transactions of the American Philological Association* 122 (1992), 133–163.

Levine, Caroline, *Forms—: Whole, Rhythm, Hierarchy, Network*. Princeton, 2015.

Lynn-George, M., *Epos: Word, Narrative and the* Iliad. Basingstoke and London, 1988.

Lynn-George, M., 'Structures of Care in the *Iliad*', *Classical Quarterly* 46 (1996), 1–26.

McKay, K.J., 'Door magic and the Epiphany Hymn', *Classical Quarterly* 17 (1967), 184–194.

Mari, Francesco, 'The Stranger on the threshold. Telemachus welcomes Athena in *Odyssey* 1.102–143: a case study of polite interaction in ancient Greek culture', *Journal of Politeness Research* 12 (2016), 221–244.

Mayor, Adrienne, *Gods and Robots. Myths, Machines, and Ancient Dreams of Technology*. Princeton, 2018.

Mendelsohn, Daniel, 'The Robots are Winning', *New York Review of Books* June 4, 2015.

Meeusen, Michiel, 'At the Gates of Mt Olympus: where AI and Literary Culture Meet' [unpublished conference paper, Oslo, Sept. 2020].

Miles, Margaret, 'Birds around the temple: constructing a sacred environment', in: Jeremy McInerney and Ineke Sluiter (eds.), *Valuing Landscape in Classical Antiquity*. Leiden, 2016, 151–195.

Norman, Donald A., *The Design of Everyday Things*. New York, 2002 [originally published as *The Psychology of Everyday Things*. New York, 1988].

Oakley, J.H., *A Guide to Scenes of Daily Life on Athenian Vases*. Madison WI, 2020.

Ogle, M.B., 'The House-Door in Greek and Roman Religion and Folk-Lore', *The American Journal of Philology* 32 (1911), 251–271.

Opstall, E.M. van (ed.), *Sacred Thresholds. The Door to the Sanctuary in Late Antiquity*. Leiden, 2018.

Pinch, T.J. and W.E. Bijker, 'The Social Construction of Facts and Artefacts: or how the sociology of science and the sociology of technology might benefit each other', *Social Studies of Science* 14 (1984), 399–441.

Reece, S., *The Stranger's Welcome: Oral Theory and the Aesthetics of the Homeric Hospitality Scene*. Ann Arbor, 1993.

Sale, William M., 'Homeric Olympus and Its Formulae', *American Journal of Philology* 105 (1984), 1–28.

Schmidt, W., *Herons von Alexandria Druckwerke und Automatentheater* = Pneumatica et Automata. Leipzig, 1899.

Sluiter, Ineke, 'Fish Similes and Converging Story Lines in the *Odyssey*', *Classical Quarterly* 64 (2014), 821–824.

Sluiter, Ineke, 'Anchoring Innovation. A Classical Research Agenda', *European Review* 25 (2017), 20–38. https://doi.org/10.1017/S1062798716000442.

Sluiter, Ineke, 'Old is the New New: The Rhetoric of Anchoring Innovation', in: R. Boogaart, H. Jansen, and M. van Leeuwen, *The Language of Argumentation*. Cham 2021, 243–259.

Sluiter, Ineke and Miguel John Versluys, 'Anchoring', in: V.P. Glăveanu (ed.), *The Palgrave Encyclopedia of the Possible*. Cham, 2022. https://doi.org/10.1007/978-3-319-98390-5_243-1.

Tybjerg, K., 'Wonder-Making and Philosophical Wonder in Hero of Alexandria', *Studies in History and Philosophy of Science* 34 (2003), 443–466.

Verdenius, W.J., 'Opening Doors (Parm. B I, 17–18)', *Mnemosyne* 30 (1977), 287–288.

Versluys, M.J. and G. Woolf, 'Artefacts and their Humans: materialising the history of religion in the Roman world', in: J. Rüpke and G. Woolf (eds.), *Religion in the Roman Empire*, Stuttgart 2021, 210–233.

Weinreich, O., 'Gebet und Wunder II: Tűröffnung in Wunder, Prodigien- und Zauberglauben der Antike', des Judentums und Christentums', in: F. Focke, J. Mewaldt, J. Vogt, C. Watzinger, O. Weinreich (eds.), *Genethliakon Wilhelm Schmid* [= *Tűbinger Beiträge* 5], Stuttgart 1929, 200–464.

Wessels, A.B., 'Speaking Doors—Voice and Materiality in Ancient Literature', in: T. Bur, M. Gerolemou, I.A. Ruffell (eds.), *Animated Technology*, Oxford 2024, 200–219.

White, Heather, 'Doors and Stars in Theocritus, *Idyll* XXIV', *Mnemosyne* 30 (1977), 135–140.

Williams, F., 'Gods and Gate-Crashing', *Mnemosyne* 30 (1977), 289–91.

Wohl, Victoria J., 'Standing by the Stathmos: the creation of sexual ideology in the *Odyssey*', *Arethusa* 26 (1993), 19–50.

Zanker, G., *Modes of Viewing in Hellenistic Poetry and Art*. Madison, 2004.