FUTURES PAST

BUR, Tatiana / GEROLEMOU, Maria / RUFFELL, Isabel A. (edd.), *Technological Animation in Classical Antiquity*. Pp. xvi + 406, ills. Oxford: Oxford University Press, 2024. Cased, £119, US$155. ISBN: 978-0-19-285755-2.

DOMOUZI, Andriana / BÄR, Silvio (edd.), *Artificial Intelligence in Greek and Roman Epic*. Pp. x + 306, ills. London and New York: Bloomsbury Academic, 2024. Cased, £90, US$120. ISBN: 978-1-350-26069-6.

FLOHR, Miko / MOLS, Stephan / TIELEMAN, Teun (edd.), *Anchoring Science and Technology in Greco-Roman Antiquity*. (Euhormos: Greco-Roman Studies in Anchoring Innovation 7.) Pp. xii + 334, b/w & colour ills. Leiden and Boston: Brill, 2025. Cased, €119. ISBN: 978-90-04-71487-8 (978-90-04-71491-5 open access).

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Since its brutal foundation myth, the story of Prometheus who steals fire from Zeus, gives it to humankind, thus turning them into something different from animals, and is perpetually ravaged by an eagle as punishment, technical knowledge has been about crossing boundaries of right and wrong, human, superhuman and subhuman, as well as temporal dimensions. Prometheus eponymously knows what lies ahead; technology is about artfully producing something that did not exist before and thus, in a sense, changing the future.

Each one of these three beautifully produced collective volumes is focused on an aspect of ancient Greek and Roman technical knowledge. The first one (henceforth *Animation*) takes as its main theme artfully and artificially created imitation of life. It ranges from Homer (R. Bielfeldt) to philosophy, particularly Aristotle and his work on the motion of animals (R. Seaford, J. De Groot, G. Galluzzo, C. Webster, S. Berryman), to Hero of Alexandria (C. Roby, Gerolemou, Bur), to discussions of material culture, both quotidian, like doors, and iconic objects, like the statue of Kairos by Lysippos, within both literature and archaeology (M. Muratov, A. Wessels, F. Grillo and C. Panayotakis, C. Mattusch, D. Steiner, S. Kim, Ruffell). The second (henceforth *AI*) is more determinedly literary, exploring the presence and functions of artificial intelligence, variously meant, in epic poetry and its receptions. Homer gets the lion's share (G.M. Chesi, B.M. Rogers, J.R. Gatt, A. Kahane, S. Weise, B.E. Stevens, T. Bell), but we also find chapters dedicated to, or taking their cue from, Hesiod (L.G. Canevaro, R. Wentzel), Apollonius Rhodius (G. Liveley, A. Giardini), Moschus (K. Mawford), Ovid (A. Matz, T. Keen), Valerius Flaccus (B. Back) and, even though he is not an epic poet, Hero of Alexandria (M. Meeusen). Finally, the linchpin of the third volume (henceforth *Anchoring*) is an interest in innovation, and how the new could be made plausible and acceptable in various contexts in antiquity. It is a diverse collection in terms of disciplines and case studies, including Science and

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Technology Studies (W.E. Bijker), the history of early modern science (L. Daston), the philosophy of science (J.W. McAllister), and taking the reader across time and space from the Near East (J.L. Baker) to Delphi (J. Vanden Broeck-Parant) and from Italy (Flohr) to Egypt (M. de Kreij). We learn about doors (I. Sluiter), artillery devices (Gerolamou), sawmills and ploughs (R. Taylor), glass and clay (A. Soifer), weaving (G. Fanfani, E. Harlizius-Klück and A. Mamidipudi), across literary evidence (S. Connolly, M.G. Hopman) and technical and medical treatises (Meeusen, Roby, Tieleman).

Animation and *AI* have more obvious points in common with each other than either of them does with *Anchoring*; yet, taken together, these three volumes, in my view, mark a significant moment in the discipline of Classics, its engagement with other disciplines and with burning issues of the current times. Therefore, rather than discuss individual contributions at length, and at the cost of not doing thorough justice to all the authors here, I have attempted to identify shared themes and broader debates that these volumes address.

First of all, what questions are these books asking and answering? *Anchoring*, along with the other publications stemming from the humongous *Anchoring Innovation* project, funded by the Dutch government over a period of ten years, could be said to be providing novel answers to a well-rehearsed question: how did the ancients view innovation, and how was the new made acceptable within societal contexts that notoriously were vocally conservative?

By contrast, the other two volumes walk more uncharted territory. This is less the case perhaps as regards *Animation*, which can point to known examples in the sources (Hephaestus' maidens, Hero of Alexandria's puppets), while declaring openly in the introduction that its aim is to attend to artifice as artifice, rather than assessing the extent to which ancient artifice was successful in mimicking life. *AI* is rather broader in its collective understanding of what is covered by the term 'artificial intelligence', and correspondingly some of the big questions raised in its chapters are pleasingly variegated. On the one hand, the introduction and some of the papers walk in the well-worn track of asking versions of 'Did the ancients have artificial intelligence?' or 'Did the ancients invent sci-fi?'. *AI*'s introduction concludes, rather rampantly, 'their ingenuity [the Greeks' and Romans'] shrewdly combining mythical imagination and pre-scientific thinking, appears to have foreshadowed a technological heyday that occurred 2,000 years later' (p. 9). To that, Kahane (*AI*) as well as Bielfeldt (*Animation*) strike an unusual note of dissent by cautioning that we may have gone too far in our cyborgifying (my term) of Hephaestus' creations. On the other hand, other papers in *AI* embrace the challenge of posing new and different questions. For instance, Rogers asks whether the Phaeacian dogs in the *Odyssey* are a form of artificial intelligence, only to conclude that this is 'the wrong question' (p. 52). Chesi takes the Homeric Trojan horse as a springboard to raise the question: 'why do we design intelligent devices?' (p. 32). The most pressing, and troubling, puzzle of all is probably 'what it means to be human' (raised by Matz, p. 170; Stevens, p. 195; Wentzel, p. 257; Keen, p. 287); this has been precipitated, as Stevens effectively puts it, by ancient sources demonstrating 'the historical reality of mental diversity' and the historical contingence of assumptions about normativity.

Collectively, these volumes ask important questions about the potential of technology, including imagined technology, to affect the world, about what we should do about it and about how technology pushes us to interrogate and rethink what life and humanity mean. Several contributors pick apart the nature of the knowledge involved, specifically *techne*. Insofar as it is a knowledge-how rather than a knowledge-that, and while it may be seen as working with nature rather than against it, *techne* tautologically always creates the artificial. Is technical creation a production, a reproduction or an innovation? Many of the chapters in

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Anchoring are case studies of *techne* in action and, consequently, explore ramifications of that question. Innovation could be seen as deliberate production rather than 'simple' reproduction, and the space between reproduction and innovation is where anchoring takes place. An extreme case of discussions of *techne* as knowledge is Stevens's exploration (in *AI*) of poetry, and epic poetry in particular, as a *techne* of 'discursive representation in language'. Thus, 'every mind depicted in epic is meaningfully AI' (p. 196), in the sense of an 'artifice of intelligence' (p. 197), and the artificial (artful?) production that is poetry (aka *poiesis*) can be conceived of as a theory of mind. Stevens's insight goes beyond a play on words and brings the themes running through *AI* closer to the discussions in *Animation*, illuminating the ways in which rhetoric and poetry are as much *technai* as metal-working and carpentry.

Bielfeldt's discussion of *techne* in *Animation* in some ways sits at a different, if not necessarily opposite, extreme. Her *techne* hardly fits, in my view, rhetoric or even medicine, which we know from classical Greek sources to have been paradigmatically *technai*. Yet within the context of Homeric epic, which Bielfeldt focuses on, I was enthralled by her deep dive into passages from the *Iliad*, which, she claims, contain the earliest occurrence of the term. *Techne* is, in Bielfeldt's words, 'the art of body-world-involvement' (p. 29) and 'the skill of being involved in and actively shaping' the world (p. 36). It results in acts, bodies and objects that transcend the intentions of the maker and in that sense are animated or automated, just like Hephaestus' creations.

Thus, the question of what it means to be human is necessarily complicated by many of the contributions, including those that do not raise it explicitly. The most evident common theme across all three volumes is possibly that of blurred boundaries. We probe the nature of humanity only to realise that any attempt to draw a line between human and not human will be determined by our assumptions, rather than by 'reality'. Indeed, one of the messiest boundaries is that between reality and artifice. The introduction to *Animation*, as mentioned, deliberately sidesteps this demarcation problem, in favour of deeper scrutiny of what the artifice is about. Is it *meant* to be an imitation of life? In other words, did the ancient authors who created or described *automata* think that the internal mechanisms of their machines in some way reproduced what was inside the body of live birds or breathing people? Was the artifice created for the sake of itself (to cause wonder, particularly in a religious context), or was it a means of exploring further scientific questions? The contributions in *Animation* tackling the question of whether or not *automata* and other artefacts were meant to imitate life (de Groot, Galluzzo, Roby, Webster) land on different answers, unsurprisingly perhaps because even the texts about building *automata* are not very forthcoming about their author's intentions. Surely insofar as ancient *automata* were at least sometimes concrete objects out there in the world, they must have been capacious enough to take on different meanings and functions simultaneously.

An interesting variation on the question of animation is the difference between imitating life and being life-like (Gerolamou on imitating voices, Mattusch on bronze statues), ultimately boiling down to the experience of the viewer/spectator (analysed by Berryman), which in itself must have been incredibly diverse. Most powerfully, Steiner (*Animation*) claims that 'the animate and manufactured are not two opposing categories' (p. 279), but rather that they deliberately blur those boundaries, complicating the very notion of human agency. Steiner implicates the makers, which is a welcome move, paralleled only by a few papers in *Anchoring* (e.g. Soifer and Taylor), and she claims that artefacts are prior to their literary representations and reflections. The objects in her focus are not the sometimes complex *automata* described in other chapters, but mostly archaic tripods, whose handles and legs and feet, sometimes with wheels, she views convincingly as playing the same role as their organic counterparts. Steiner also advocates for the fruitfulness of the notions of

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entanglement (for instance, capturing not just the craftsmen and their prosthetically activated tools, but also the entire space where the work happens, i.e. the forge in the case of Hephaestus) and of material agency.

Yet another fascinating perspective shared by all three volumes is their attention to material and non-human agency, specifically of objects and animals. Where else would you find two chapters on doors? Sluiter in *Anchoring* takes her cue from M.J. Versluys and G. Woolf's 'Artefacts and their Humans' (in: J. Rüpke and G. Woolf [edd.], *Religion in the Roman Empire* [2021]) and centres doors as 'part of a socio-technical assemblage' (p. 62). By looking at the self-moving gates of Olympos in the *Iliad* and at Hero's *Pneumatica*, she covers some of the same ground as Wessels in *Animation*. The latter, however, goes even further in attributing agency to objects, pointing out that doors, in a sense, speak (or at least communicate) the language of in and out, open/closed and also, more ambiguously, ajar. Doors are animated poetically in the common literary trope of the lover shut outside a locked door at night (Catullus, Propertius). The furniture theme is continued by tripods, archaeologically and epically attested, which figure in Steiner's chapter in *Animation* and also Kahane's in *AI*. Again, in a dazzling reflection on the entanglements of human or human-like bodies (Hephaestus') and things, specifically the bellows, the axe (which is, in a marvellous simile in the *Iliad*, said to be like Hector's heart) and a cord strung by an experienced carpenter building a ship, Bielfeldt redefines *techne* and cracks open the idea of a hard divide between the self and the world in archaic Greek literature. Ships figure in Ruffell (*Animation*, on the ship allegedly taken along the Panathenaic procession) and in Back (*AI*, the sentient ship Argo) and across several papers in the form of the Phaeacians' self-moving ship. Several contributions focus on animals, or rather mostly objects shaped like animals, such as the Trojan horse (Chesi in *AI*), Phalaris' bull (Giardini in *AI*), and the golden and silver dogs of the Phaeacians, beautifully contrasted with Odysseus' dog Argos by Rogers (*AI*).

In parallel to the question about what makes us human, through animals the authors interrogate what it means for something to be alive, and for a human interlocutor to attribute a mind to it. The subordinate yet threatening nature of animals in the ancient imagination (tame and attending to our life needs, but also wild and monstrous) comes to the fore in the exploration of how animals, or rather object/animal hybrids, can be marshalled by evil-minded humans for cruel and violent ends. Agency is recognised in animals at the same time as it is ultimately denied them by their human masters. Rogers considers the stretchy category of cyborg (strictly speaking, a hybrid of the biological and the mechanical or artificial) in order to describe the dogs of the Phaeacians in *AI*. The notion that Pandora can also be viewed as a cyborg or as, in Canevaro's discussion in *AI*, an android, is not new, but Canevaro probes even deeper into the paradox, as she calls it, of who or what or who's (plural) Pandora is; a prototype for women, collectively crafted by the gods in the form of something that, strictly speaking, does not exist yet. Pandora's intentionality remains hopelessly opaque, as does that of her later configuration, Pygmalion's statue (per Matz, with further reception history in Keen, both in *AI*). Also self-directed but lacking in autonomy is the enigma that is Talos, about which Liveley (*AI*) asks similar questions as Canevaro for Pandora: what is he? Liveley comes to similar conclusions about his/its 'indeterminate status as artificial human' (p. 105) and the cognitive challenge that posed for ancient (and modern) readers. Bell (*AI*) brings it all back to the beginning by arguing cogently that epic heroes can also be seen as cyborgs, not only because of the prosthetic role of their metallic armour, but also, more radically, because of the deliberate attempts narrated in epic poetry of mothers (e.g. Thetis) trying to make their heroic babies immortal by, in a sense, turning their skin into something like metal.

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In sum, the contributions under review articulate loud and clear the possibility of non-human agency and non-human minds, through ancient narratives and other ancient reflections on the material and artificial world. The expansion into the post-human is predicated on the impossibility to draw sharp distinctions, and the triumph of hybridisation. Somewhere in this multi-way crossroads sit also the enslaved. It is perhaps a little surprising that the three volumes do not talk more about slavery than they do. Seaford in *Animation* does, homing in on a passage in Plato where Daedalus' moving statues are compared to fugitive slaves, in a lucid and insightful paper, which is a fitting last word for a ground-breaking, wide-ranging scholar. Conversely Bielfeldt, also in *Animation*, if I understand her correctly (p. 20 and n. 14), is reluctant to bring slavery into it, even though in my view the evidence pointing in the direction of *automata* = enslaved is quite strong. Yet, for the rest, there is not much on this topic. On the one hand, there is so much new scholarship being published at the moment on enslavement, knowledge production and the cognitive turn that one can simply join the dots, as it were, and leave interested readers to further their enquiry independently. On the other hand, in famous ancient formulations (Aristotle's *Politics*, one of the most often cited texts here) enslaved people are instruments, which would make them objects, but they are also alive: they have a voice, they move by themselves, and Aristotle cannot deny that they have a soul. All that would make them at the very least comparable to animals, either tame and subordinate or wild and resistant to subjugation. Additionally, their voice is human – a criterion for human-ness, which is curiously not mentioned by Gerolamou in her piece on voice and its entanglements with the imitation of life (*Animation*). Aristotle is very aware that the status of the enslaved, for all that they may be born to be 'natural slaves', can change. They can be freed by their enslavers, just as their enslavers can be kidnapped by pirates and become enslaved. In other words, what the contributions under review say about blurred boundaries between human, animal, object, and about agency and materiality, applies with particular force to the enslaved, whose circumstances further complicate not only the reflection on what it means to be human, but also who has the power and the means to answer that question not in the abstract, but in the concrete context of real, everyday life.

Agency is a *fil rouge* through the three volumes, which implicitly and sometimes explicitly engage with historiographical trends that have emerged in the field of Classics in the last 20 years or even within shorter periods. Oversimplifying wildly, they are cognitivism, with its accompanying attention to distributed cognition and embodied knowledge (but n.b.: Bielfeldt in *Animation* distances herself from the 4Es, p. 22 n. 21); post-humanism, which has shifted the focus towards non-human agents such as animals as well as post-human beings such as cyborgs, robots and constructs with enhanced human characteristics (Homertron in Gatt's chapter in *AI*); and finally New Materialism, which does something similar but with objects. Some contributors explicitly invoke one or more -isms (Canevaro in *AI*; Steiner in *Animation*), others do so implicitly through their footnotes and bibliography. Similarly to all -isms, however, different people draw water from different wells – in the case of the *AI* volume there are many shared references not only to pioneers of post-humanism within Classics such as Liveley, but also to both scholarship on modern AI and science-fiction. What seems notably absent, apart from a bunch of D. Haraway and B. Latour references, is any significant Science and Technology Studies framework. An exception to that is the *Anchoring* volume, in which most chapters (including, unsurprisingly, one by Bjiker) sing from the same hymn sheet, in citing as their token STS scholar W.E. Bjiker. Sluiter's 2017 key and excellent article on anchoring innovation is also cited by all but three chapters. Again, this is unsurprising and also, on the positive side, cohesive. Yet there is a sense of established orthodoxy, which may have been unintentional.

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Such a strong methodological framework, and its comparative absence in the other two volumes, raises the further issue of what the relationship between 'theory' and what we say about the evidence should be, not just in how we come up with our interpretations, but in how we communicate them to others, particularly in writing. Notoriously, there are different schools of thought on this point. Is it possible, or desirable, to produce an article about artificial intelligence in antiquity without each time putting our cards on the table in terms of how we theorise the object of our enquiries and how we navigate anachronism? Or should we just get on with the job of reading ancient texts and extracting new, plausible and intriguing meanings from them? Taken together, the three volumes under review do not offer one answer, but present a gamut of possibilities.

In so doing, they also amount to a polyphonic reflection on the discipline of Classics in the first third of the twenty-first century. First of all, these three volumes are an excellent example of how scholars continue to have new and interesting things to say about canonical authors like Homer, Hesiod and Aristotle. So many of the contributors discuss the passages in *Iliad* 18 regarding Hephaestus' moving tripods and his animated maidens, and yet they manage not to say the same things. Aristotle's biology gets a good run alongside his better-known *Politics*. It is refreshing to see more than one paper (De Groot, Galluzzo, Webster in *Animation*) engaging with the same obscure passage and, again, come up not just with different answers, but genuinely different ways of looking at the text. It is even more heartwarming to see Hero of Alexandria fully embraced and taken into the fold of mainstream Classics. He is the mandatory reference for ancient *automata* and thus the focus of many of the papers, including a masterly double bill on *Metrica* and *Automata* by Roby, a scholar whose work is always enlightening and stimulating in equal measure.

Secondly, these volumes are truly interdisciplinary, albeit in different ways. It seems to have become closer to the norm for a scholar to be able to marshal evidence of different kinds, for instance archaeological and literary, in a way that is not simply superficial. When that happens, the results are always enhanced – both clearer and more convincing, and speaking to a larger audience. Are some of the papers in these volumes a vision of the future, in the sense of the decline, or at least sea change, of drastic disciplinary divisions within Classics? *Anchoring* runs a perfect gamut from Science and Technology Studies to archaeology to ancient history, to literature, to philosophy, mathematics and medicine. It even contains a fantastic case study (de Kreij) on innovation in bookcraft, which engages closely not just with the materiality of ancient book rolls, but also with what may have been the lived experience of reading one. Only slightly less widely ranging are the papers in *Animation*, which cluster more than *Anchoring* on some themes and authors, but at the same time go from philosophy to history of technology, to archaeology, and in some cases (Steiner, Mattusch) cross over between disciplines with enriching results. In particular Webster both offers a deep dive into a passage from Aristotle's biology and goes to the lengths of reconstructing and testing the (small, but not toy) wagon used in that passage as an analogy to the workings of the body. *AI* is admittedly on epic, and, while abundant in exploring science fiction and materiality and the *techne* of poetry, it is rather low on consideration of material evidence. On the one hand, not many remains have been found of bronze bulls or sentient boats. On the other hand, is this reluctance to grasp the material of materiality going to hold us back from stepping into real-world debates about artificial intelligence, technology and the future of humanities (and of humanity)?

Towards the end of a powerful article in *Pasts Imperfect* (8 January 2026) J. Howley writes: 'The academy faces, from the "AI" industry, a double assault that seeks to reclassify literate thought as worthless, and to designate as illegitimate any critique or skepticism of that project from humanistic disciplines. Underwriting both moves is often the claim that the times and the technology are unprecedented. But the reclassification, maintenance, and

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surveillance of intellectual jurisdictions are in fact painfully precedented'. Howley is referring to the role of enslaved people in literary production in antiquity. His words, however, also resonate with those of several of the contributors here, who in various ways not only argue, but demonstrate that we have much to learn from antiquity about AI (e.g. introduction to *AI*, p. 9, Canevaro in *AI*, p. 16, citing Liveley).

Ancient authors could see the moral ambiguity of artificial intelligence, technological animation and technological innovation. Beyond the potential for understanding and entertainment, and possible utility, cautionary tales abound of cyborgs running amok, from the beautiful evil Pandora to Talos, to the fierce bronze bulls in Giardini (*AI*). Both Kahane (*AI*) and Bur (*Animation*) evoke what Kahane calls 'the theology of technology' (p. 89) and the religious, and one would imagine legitimising, context, for many of the ancient *automata*. Hephaestus' divinity and at the same time his closeness to human imperfection also fits within this discourse, which frames technology as potentially threatening, but also necessary or perhaps inevitable. At the same time, by carefully reading Hesiod's account of the Age of Heroes and modern science-fiction in tandem, Wentzel (*AI*) reminds us how in both cases we are exploring the limits of the human in order to learn from our quest, no matter how flawed. Her concluding wish (p. 261) is that we manage 'to embrace the best of humanity that is already within our grasp'.

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