‘The Stamp of Life’: New Imaginative Realities in the Late Georgian Era

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The turbulent progress of natural philosophy in the late eighteenth- and early nineteenth-centuries created an intellectual landscape rife for speculation. In particular, developments in philosophy of mind and the nascent field of chemistry introduced new uncertainties into how people were to conceive of themselves as both individuals and human beings — domains which, up until that point, had been merely theological concerns. This study will examine two cultural products of the period, Shelley’s Frankenstein *(1818) and famed chess automaton ‘The Turk’, and explore what they can tell us about the changes in the popular consciousness of the period.*

The early nineteenth-century was a time of great scientific upheaval. Even before the appearance of *On the Origin of Species* in 1859, heated debate had been raging for decades about the correct approach to investigating the principles of life. In the 1810s, 'Biology' was only just beginning to enter the lexicon, and those working in chemistry, a field which enjoyed a rather broader scope than it does today, used their position at the forefront of a rapidly developing science to reach rare heights of celebrity.[1][2][3] It is not hard to imagine how: for many, chemistry’s promises for technological improvement suggested a new dawn in human civilisation,[4] but it was also a:

voguish science that made its way into the salons and drawing rooms of the upper bourgeoisie. Chemists seemed to wield magic in manipulating the powers of nature to practical and amusing ends. Chemical demonstrations for the lay public, portable chemical laboratories, hydrogen balloons, and electrochemical experiments all secured the place of chemistry in public culture and imagination.[5]

But even their apparently unlimited powers to delight and improve society couldn’t bring the chemist untempered esteem. Some of their activities, particularly those involving anatomical experiments, caused them significant disrepute, primarily due to the unseemly methods often resorted to in obtaining human cadavers.[6] Nevertheless, the results of some of these investigations spoke for themselves. In his 1803 experiments, where galvanic electricity was applied to recently deceased human bodies, Giovanni Aldini observed as a corpse’s ‘jaw began to quiver, the adjoining muscles… horribly contorted, and the left eye actually opened’. In subsequent experiments he was able to reproduce these physical symptoms, even commenting that some such responses were enough to almost ‘give an

[1] Roger Luckhurst, ‘Interrelations: Science Fiction and the Gothic’ in *The Cambridge History of Science Fiction*, eds G. Canavan & E. Link (Cambridge: Cambridge University Press, 2019), 35-49, p. 41.
[2] ‘Chemistry is that part of natural philosophy which relates to those intimate actions of bodies upon each other, by which their appearances are altered, and their individuality destroyed’ Davy, Humphry, ‘A Discourse Introductory to a Course of Lectures on Chemistry’, in *The Collected Works of Sir Humphry Davy* (London: Smith, Elder and Co. Cornhill, 1839) 311-326, p. 311.
[3] Mary Fairclough, ‘Frankenstein and Chemistry’ in *Literature and Medicine* (Baltimore: Johns Hopkins University Press) 36, no. 2 (Fall 2018), 269-286, p. 270.
[4] Davy, p. 323.
[5] Mi Gyung Kim in Fairclough, p. 270.
[6] Nick Groom in Mary Shelley, *Frankenstein*, ed. by Nick Groom (Oxford: Oxford University Press, 2018), ix-l, pp. xx-i.

appearance of reanimation'. Indeed, Aldini records that the results of Experiment IV 'surpassed [his] most sanguine expectations, and vitality might, perhaps, have been restored, if many circumstances had not rendered it impossible'. "[7]

This belief, that in electrifying a corpse one might bring it back to life, is just one part of an old and far-reaching philosophical debate about the principle of life, or vitality, which began to be convolved and reimagined in the wake of the early century's scientific discoveries. Generally speaking, the debate revolved around two opposed approaches to the interpretation of life as a scientific phenomenon. The first was a mechanistic approach, which argued that there is nothing to distinguish living from inanimate matter — all life processes can thereby be understood merely as kinds of chemical and physical events. This view gained renewed advocacy in the nineteenth century thanks in part to the popularity of La Mettrie's 1748 essay *L'homme Machine*, in which he praised Descartes for demonstrating animals to be mere machines, but decried both his dualism and his distinction of humans from animals, famously concluding that man, too, is a mechanical being.[8] The second theory, vitalism, argued instead that some kind of obscure life force separated living beings in kind from other kinds of object.[9] The possibility that electricity could provide the missing key to the vitalist philosophy was just one cause for excitement at its discovery.

But, even if this mysterious new phenomenon could vindicate vitalism once and for all, its astonishing effects on the human body raised further unsettling questions. If electricity was the secret to life, and now lay in the hands of human experimenters, did that mean that it would soon lie within human power to reanimate the dead? Or even, perhaps, to give life to otherwise wholly inanimate matter? While some vitalists, such as John Abernethy, believed that 'life force was electrical', and so electricity was crucially 'linked with the notion of the soul', for others, like Humphry Davy, vitality could not be a mere chemical principle because it must be an essentially religious one.[10][11] For Davy, this might have been sufficient assurance that the nascent chemistry didn't impinge on his religious commitments, but for others, these new discoveries in the field raised uncomfortable questions about life, death, and personhood that conflicted with received religious beliefs.

The popularity of La Mettrie's *L'homme Machine* was not only significant in philosophical debate, but also had a profound influence on the popular material culture of the late eighteenth century in laying the groundwork for a 'craze for anthropic contraptions':[12] mechanical musicians, tight-rope walkers, dancers,[13] magicians which could answer various questions,[14] and other mechanical wonders of every imaginable variety, were exhibited across Europe and America for the benefit of paying

[7] Giovanni Aldini, 'An Account of the Experiments Performed by J. Aldini', in *Romanticism and Science*, ed. Tim Fulford (Routledge: London, 2002) 286-293, p. 288.
[8] Julien Offray de La Mettrie, *Man a Machine* (Dublin: W. Brien, 1749), pp. 63-4, 72.
[9] Groom, pp. xxv-xxvi.
[10] Ibid, p. xxvi.
[11] Fairclough, p. 276.
[12] Groom, p. xxii.
[13] Mark Sussman, 'Performing the Intelligent Machine: Deception and Enchantment in the Life of the Automaton Chess Player', *TDR* , Vol. 43, No. 3 (Boston: The MIT Press, Autumn, 1999) 81-96, p. 87.
[14] Edgar Allen Poe, 'Maelzel's Chess Player' in *The Works of Edgar Allen Poe Vol. IV* (New York: A.C. Armstrong & Son, 1856) 346-370, pp. 347-8.

audiences from the second half of the eighteenth-century onwards. One such automaton, 'The Turk', built in 1769 and enjoying a performance career of eighty-five years, would threaten to undermine human exceptionalism under a mechanistic worldview. It was not a mere toy or a feat of physical imitation, but could apparently recreate the powers of human reason by challenging and defeating human beings in a game of chess.[15] If this automaton could really be a 'pure machine', then it seriously threatened contemporary understandings of what constituted the human.

In outward appearance, the Turk was a life-sized replica of a man 'habited as a Turk, and seated, with its legs crossed, at a large box… which serve[d] as its table' and was set on castors, allowing it to be freely rolled around the exhibition room. When it was presented to the paying audience it was kept at a distance of about twelve feet. At the start of the exhibition, in a very specific order, large doors would be opened at the front and rear of the box, as well as on the figure of the Turk himself, revealing dense machinery and an empty cabinet space for the purpose of convincing the spectators that no human agent could be concealed inside. Once the doors had been closed again, a member of the audience would be invited to the stage, where the automaton would engage them in a strong game of chess.[16]

The elaborate stagecraft of the public's encounter with the machine should, perhaps, be an indication that it had more in common with today's magic shows than its super-computers. In fact, according to several accounts, its creator himself, Wolfgang de Kempelen, stated that:

the machine was a bagatelle, which was not without merit in point of mechanism, but that the effect of it appeared so marvelous only from the boldness of the conception, and the fortunate choice of the methods adopted for promoting the illusion.[17]

Notwithstanding his own frank assessment of the powers at work in his invention, those who went to watch it at work in touring exhibitions across Europe and the United States didn't fail to impute upon it real powers of reason and human intelligence. When Edgar Allen Poe described the machine in 1834 he did so in hyperbolic terms:

Perhaps no exhibition of the kind has ever elicited so general attention as the Chess-Player of Maelzel.… [W]e find everywhere men of mechanical genius, of great general acuteness, and discriminative understanding, who make no scruple in pronouncing the Automaton a pure machine, unconnected with human agency in its movements, and consequently, beyond all comparison, the most astonishing of the inventions of mankind.[18]

For a device to create a popular consensus of it being among the greatest achievements of mankind, rather than just a particularly clever illusion, even in direct contradiction of its own creator, it must have been a very good trick indeed. During the course of its lifetime several pamphlets were written suggesting the various ways in which the trick might be pulled off, but it wasn't until the machine had been lost in a fire in 1854 that the matter was definitively concluded, when Silas Mitchell, a son of the final owner of the Turk, wrote a series of articles for *Chess Monthly* eulogising the machine as one might eulogise a real chess master (with his

[15] See: An Oxford Graduate, 'Observations on the Automaton Chess Player Now Exhibited in London, at 4, Spring Gardens' (London: J. Hatchard, 1819).
[16] Poe, p. 351-4.
[17] Sussman, pp. 86-87.
[18] Poe, p. 346.

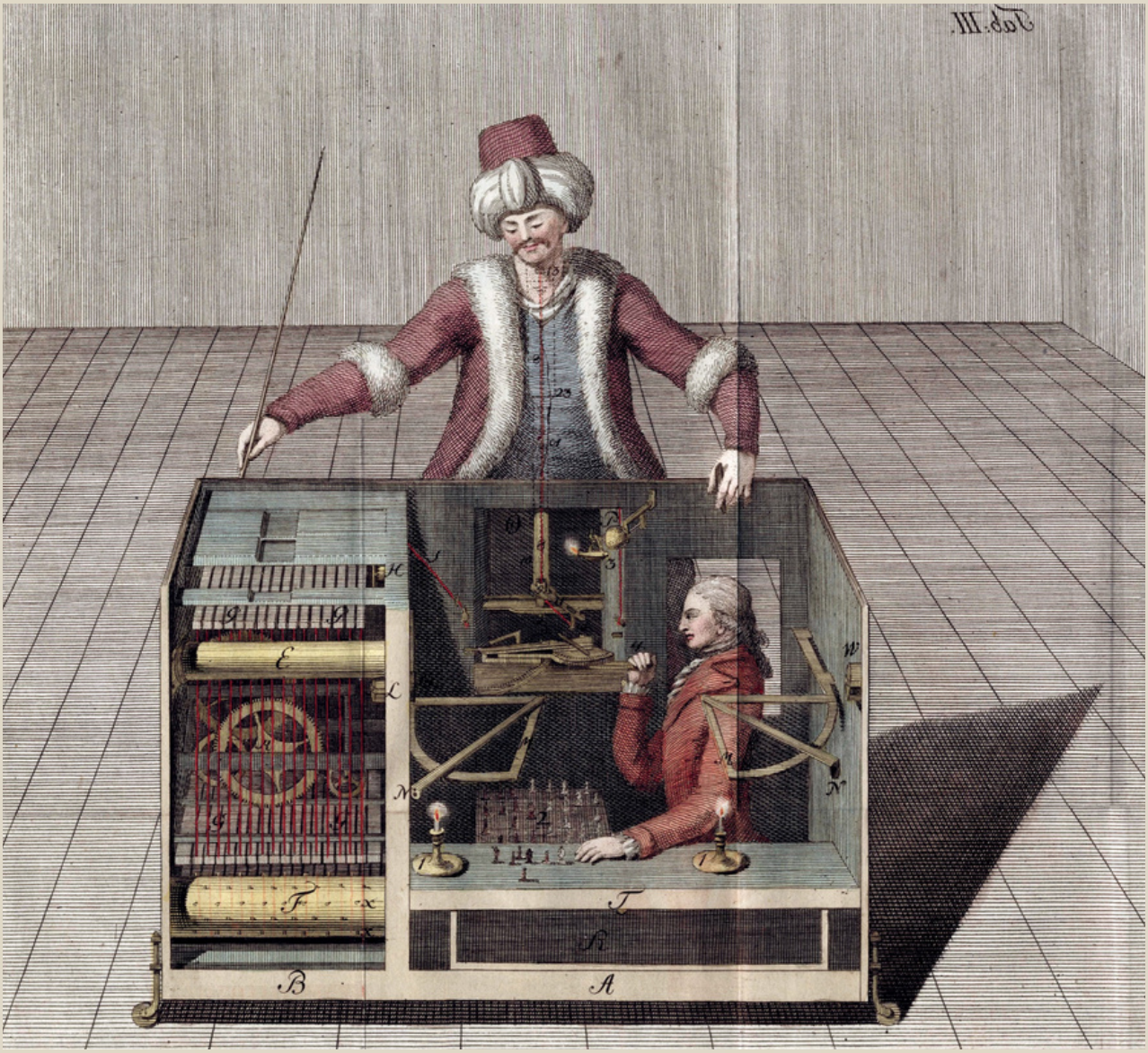

Figure 1: *The Turk*, built by Wolfgang von Kempelen.
Image by Joseph Racknitz, The Turk, 1789, Humboldt University Library via Wikimedia Commons

tongue firmly in his cheek). According to Mitchell, the Turk was 'One of the most famous personages of the last hundred years', whose 'constitution of iron enabled him to endure with patience long voyages, changing climates, and many sad reverses... As a republican, he must undoubtedly claim our respect, since, perhaps, no other man has ever checked the march of so many kings as he'.[19]

The ironical mode Mitchell adopts here is not empty levity but lampoons the outsized reputation the machine had gathered in its long career, as well as the impressive credulity it met with, not as a mere *bagatelle*, but as a reasoning agent — a mechanical man. The Turk's secret turns out to be rather simple after all. The arm and fingers of the Turk were controlled from within by a levered pantograph, while ornamental machinery, a false-back to the bottom drawer, and a 'low seat' attached to an 'iron railroad', allowed the operator to move quietly around the cabinet during exhibition in order to disguise his presence as the various doors were opened and interior spaces examined. The operator worked with a chess board in front of him and could see, with the clever use of magnetic pieces and iron disks attached to the underside of the Turk's board, which moves were made by his opponent.[20] Like modern magic shows, the trick's simplicity and 'boldness of conception' only strengthened the illusion for spectators with an in-built desire to be entertained.[21]

Doubtless, the readiness of the public to embrace the Turk, not as an entertaining illusion but a real feat of mechanical wizardry, owes a lot to the dizzying progress of the new sciences in the late eighteenth-century. Scientific progress was, in some respects, indistinguishable from the occult: electricity and magnetism, which we now know to be physical phenomena, remained entirely obscure in their essence, despite the fact that chemists could wield them to amusing effect — electricity, in its status as a candidate for vitality, was not just of technological interest, but seemed to amount to a mystic principle. Like the 'proleptic' science-fiction of the period, which 'levered open imaginative possibilities at the boundaries of advancing knowledge, exploiting ungrounded phases of extraordinary' science where norms are unravelling and have not quite yet established a new norm', the Turk invited credulity by feeding upon a technological landscape that seemed, to a lay-public, to be moving incomprehensibly quickly.[22]

As this comparison suggests, this period of science history proved fecund for pop-cultural developments far more enduring than the essentially ephemeral fad for automata. With such a nascent, disruptive, and contentious discipline evolving before the public's very eyes, its sometimes-eccentric practitioners promising to re-animate the dead or uncover the secrets of life itself, it is perhaps an inevitability that evidence of related anxieties find expression in the literary production of the period. Perhaps most clearly can these anxieties be detected in Mary Shelley's *Frankenstein* (1818), which, in its polemic of the imaginatively rich wild-west of this stretch of science history, set a precedent that would be continuously elaborated as

[19] Silas Mitchell, 'The Last of a Veteran Chess Player' in *Chess Monthly: an American chess serial*, ed. D.W. Fiske (New York (State): P. Miller and Son, 1857) 4-8, p. 5.
[20] Ibid, pp. 41-4.
[21] For more on the Turk's analogies to magic shows and other spectacle entertainments, see Sussman.
[22] Luckhurst, p. 36.

science-fiction emerged as a distinct genre throughout the Victorian era.

Along with the pioneering work with galvanic electricity already mentioned, great leaps had been made in other areas of human anatomy that further eroded the conceptual barrier between human-kind and Other. New medical procedures, such as transplantation between live donors, and cosmetic surgeries, such as skin-grafts and rhinoplasties, had appeared by the late eighteenth-century, as had the field of comparative anatomy, which taught that, when faced with the scarcity of human cadavers, dissections of animals could provide useful analogies. This latter practice, along with the development of the cow-pox vaccine, contributed to serious, popular concerns about the possibility for human-animal hybrids.[23] As the new sciences developed rapidly, challenging received knowledge with every new discovery, imaginations continued to run wild about where scientific progress might end up taking us.

It is interesting that Shelley, while writing the novel, had direct contact with many of the controversies of chemistry both through her own education and the intermediary of her husband, Percy, who served as the novel's editor and 'was responsible for about 4,000 of the first draft s 72,000 words'.[24] As a young woman she had attended the lectures of Humphry Davy, a key figure in early century chemistry whose essay 'A Discourse, Introductory to a Course of Lectures on Chemistry' likely provided the basis for much of the scientific content of the novel.[25][26] Percy Shelley had briefly studied under two anatomists, John Abernethy, a surgeon and 'avowed vitalist', and William Lawrence, who had a vicious public row on the vitalism question in the mid 1810s.[27] Lawrence, who personally provided medical treatment for both of the Shelleys in the following years, had gained a reputation as an openly atheistic leading light 'of modern, materialist science'.[28] His 1816 lecture before the Royal College of Surgeons entitled 'On Life' laid out the breadth of his theoretical departures from Abernethy, arguing that vitality could not be some mystic force or property — in fact, life was not subject to any particular principle at all, but instead the mere 'assemblage of all the functions' of living beings 'and the general result of their exercise'.[29]

The implications of such an outlook have an obvious relationship to the themes of *Frankenstein*. Lawrence is advocating for a sort of functionalism, and explicitly rejecting any conception of life that requires reference to vague forces that cannot be directly observed — even, perhaps, the interiority or subjectivity of living beings. In other words, if an object exercises the functions of life it is senseless to argue that the object is not alive: if Vaucanson's famous automaton duck, which could apparently 'eat, digest, and excrete its food', perfectly mimic a duck's real movements, quack, drink water, and respond to external stimuli, really could exercise these functions of life of its own accord, then it was, to some extent, alive; if

[23] Groom, pp. xxiv-v.
[24] *Ibid*., pp. li-lv; liv.
[25] *Ibid.*, p. xx.
[26] See Laura E. Crouch, 'Davy's 'A Discourse, Introductory to a Course of Lectures on Chemistry': A Possible Scientific Source of 'Frankenstein'' in *Keats-Shelley Journal* (Keats-Shelley Association of America,1978) Vol. 27, 35-44.
[27] Fairclough, p. 271.
[28] Luckhurst, p. 42.
[29] William Lawrence, 'On Life' in *An introduction to comparative anatomy and physiology; being the two introductory lectures delivered at the Royal College of Surgeons, on the 21st and 25th of March, 1816*' (London: J. Callow, 1816) 115-179, p. 120.

the Turk really could reason and imitate the appearance of a real human then it too was alive, regardless of how this might contradict our prejudices.[30][31] And if, according to the principles of La Mettrie, a machine could be built from bits of different human cadavers, animal carcasses, and animated with galvanic electricity, then it too must be viewed as a real, individual, organic being. What's more, if Descartes' distinction between humans and animals really was compromised, it might even be considered human, however monstrous such a conclusion might at first appear.[32]

So the horror of the Monster draws, in no small part, from the parody it makes of personhood, the ideas we have about our own identity as human-beings. Groom writes that:

The Being is a composite man-beast, a hybrid of the living and the dead. It is made of body fragments from different corpses, gleanings from dissection rooms and abattoirs, parts from 'tortured' animals—a literal chimera, a fusion infused with a 'spark of being'.[33]

Not only is our capital-H Human identity undermined radically by the placement of a rational, sensitive, and self-conscious intellect into a grotesque body of disparate organic bits and pieces, our individual identity, our understanding of ourselves as unique bodies attached to unique minds, is compromised by the apparent interchangeability of human- with animal- body parts or inanimate materials.[34]

This ready-made, holistic conception of human-kind in the Christian tradition is mocked by the Creature. 'I ought to be thy Adam', he tells Victor, a creator who, like the Christian God, has driven him from the Eden of his innocent state and forced him to face the evils of the human world.[35] But if Victor's work is of a kind with God's then the comparison is not a complimentary one. Its description, while sometimes vague, is base and corporeal rather than beatific:

I collected bones from charnel houses; and disturbed, with profane fingers, the tremendous secrets of the human frame. In a solitary chamber, or rather cell… I kept my workshop of filthy creation… The dissecting room and slaughter-house furnished many of my materials; and often did my human-nature turn with loathing from my occupation, whilst, still urged on by an eagerness which perpetually increased, I brought my work near to a conclusion.[36]

In this passage the God of Christianity becomes a solitary, grave-robbing anatomist, disgusted by his unnatural work, yet driven on by an eagerness for material success, a solipsistic desire to uncover the secrets of nature at the cost of all else.[37] By appropriating the rhetoric of contemporary science advocacy and philosophy in her parodies of God in Victor and human-kind in his Monster, Shelley makes their hidden implications for the future of the human identity, and the guiding norms of religious tradition, explicit. This device was not only a powerful polemic against the free-wheeling intellectual culture that surrounded her, but

[30] Sussman, p. 89.
[31] Poe, p. 348.
[32] La Mettrie, pp. 63-4.
[33] Groom, p. xxxvii.
[34] Mary Shelley, *Frankenstein*, ed by Nick Groom (Oxford: Oxford University Press, 2018), vol. II, ch. III.
[35] Shelley, pp. 70-1.
[36] Shelley, p. 35.
[37] Shelley, pp. 29-31.

also opened up a deep well of cultural anxiety that could be exploited to great horrific and literary effect — one which would continue to appear, in varying forms, from the science-fiction of the nineteenth-century until today.

Both the craze of automata and Shelley's science-fiction were examples of how technological developments could help to build new imaginative realities. The picture that they paint is of a Western society on an increasingly uncertain intellectual footing. Before science, with its strange achievements and public demonstrations, had wrested limited control of the cultural imagination from the Church, the Turk would perhaps have been dismissed as clever trickery or feared as witchcraft. Once the enormous potential of science as a method within natural philosophy had begun to be explored, and suspiciously atheistic philosophies like La Mettrie's had proved influential, the orthodoxy of religion seemed less assured than ever. And, until a new norm was to be established, anything was possible, even the invention of a mechanical man, or the creation of a new, intelligent Being from the discarded detritus of charnel houses.

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