A thing living, and not growing

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In both the book 'A Clockwork Orange' and its film adaptation, Alex, the story's protagonist, exercises the limits of control. To reflect upon his relationships and interactions – with his family, his friendship group, his flings, his correctional officer, and his prisoners – is to see Alex push, force, manipulate, and coerce everyone to his own will.

Alex has a near-unshakeable confidence in his own abilities, both mental and physical. Indeed, when he agrees to undergo the Ludovico Technique – the behaviour-steering procedure that enacts the story's central narrative pivot – it is done as a matter of his own choice, with the unassailable belief that it will have no effect upon him. Alex is the archetypal 'autonomous man', whose world is shaped around him and him alone, and which has regrettable, but necessary, victims. For Alex, the world itself is victim to his desires. There may be the argument made that the structures of Alex's society and environment (indeed, our own; science-fictionalised) are constricting, that they suffocate the individual. That Alex's self-determined exceptionalism is a matter of admiration. The question then becomes a moralistic or ethical one.

This essay will examine the nature of autonomy and free will in relation to behaviour-altering technologies. It will consider the contemporary practice of biotechnology and, using 'A Clockwork Orange' as a cautionary tale, speculate on the ramifications of technology and artificial intelligence upon the 'real'.

Commenting on his novel, Anthony Burgess summarised the central theme as '[t]he forced marriage of an organism to a mechanism, of a thing living, growing … to a cold, dead artefact – is that solely a concept of nightmare?'[1] Nevertheless, 'A Clockwork Orange' presupposes that which is now being writ real: an epochal shift driven by the joining of 'bio-' to '-technology'.

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Anthropocenic inquiry is an indistinct terrain. It is probably more suited to philosophy and the humanities rather than the natural sciences; from a geological perspective, the Anthropocene is a theory – a work-in-progress – rather than a defined epoch. As a critical concept, the Anthropocene allows humans to instigate and investigate varieties of epistemic systems relating to their own place in both the environment and in history.

Nature has always been shaped to human need. David Orr writes of the 'mythic condition of [a return to] ecological innocence. No such place ever existed.'[2] Denouncing the contribution of the human hand to the destruction of nature is phatic; the natural form of the human impulse is *expansionist*. Under the human hand, nature has been polluted, domesticated, packaged, and managed. There are potential solutions for the protection and preservation of the earth's ecology.

Traditionalists ask that we allow nature to fully reclaim part of the earth; 'ecomodernists' argue for the 'decoupling [of] human development from environmental impacts.'[3] Both of these examples are absolute, and more polemical than realistic. Active solutions towards ecological sustainability tend to incorporate forms of 'human-centred design.' This is the implication that in order to be sustained – even in its present, vastly reduced state – nature must be regulated to human requirement.

That humans are separate to nature is a view that descends from the concept of exceptionalism, which itself is related to the practice of expansionism. An often-overlooked aspect of the anthropocenic is how nature is manifest within the human – that is, the biology and ecology of the human body. Ethical and moral considerations of human intervention with the environment are positioned in a significantly different manner to the ethical and moral considerations of human interventions with their own evolution. In geological terms, the Anthropocene is an environment concept, but the biological human form is an inherently anthropocenic concern.

The biologist Carl R. Woese speculated on a pre-Darwinian moment and positioned his paper 'A New Biology for a New Century' within that gap in knowledge.[4] Physicist Freeman Dyson effectively summarised one of Woese's key narratives by describing a proto-stage that existed before natural selection took place, where 'a community of cells of various kinds, sharing their genetic information so that clever tricks and catalytic processes invented by one creature could be inherited by them all.'[5] What Woese explicates is an 'horizontal gene transfer' (a practice which only became accepted as provable in the late 1980s) taking place hundreds of millions of years before thought possible. Dyson presents a close reading of this pre-Darwinian horizontal gene

transfer, noting in this period that the 'basic biochemical machinery of life evolved rapidly during the first few hundred million years…and changed very little in the following two billion years [of the Darwinian era] of microbial evolution.'[6] He states that, following Woese's speculations, we must undertake a reconsideration of what biology means to humans, including its moral and ethical dimensions. He writes how now, in the twenty-first century, 'the Darwinian era is over,'[7] and:

…when a single species, *Homo sapiens*, began to dominate and reorganize the biosphere…cultural evolution replaced biological evolution as the driving force for change. Cultural evolution is not Darwinian. Cultures spread by horizontal transfer of ideas more than by genetic inheritance…In the post-Darwinian era, biotechnology will be domesticated.[8]

Dyson gives examples of do-it-yourself kits for gardeners, home-operated gene transfer kits for breeding new varieties of flowers; biotech games for children, played with real eggs and seeds rather than images on screens. He points towards genetic engineering creating an explosion of biodiversity. His meaning is that humans now have the ability to alter evolutionary courses across the entire natural ecosystem – including for themselves.

The terms 'biotechnology', 'genetic engineering', and the alteration of human bio-evolution evoke a dystopian vision of the man reliant on the machine. The philosopher Herbert Marcuse coined the term 'Technological Rationality'. The concept drew from an analysis of the Third Reich, which he called 'a form of "technocracy": the technical considerations of imperialistic efficiency and rationality supersede the traditional standards of profitability and general welfare.'[9] The war economy of the Nazi regime instituted technologies that were rational in wartime but irrational in

peacetime. When these technologies became widespread, the irrational becomes normal. Influencing human biology is by no means a new practice – prostheses have been discovered dating back to Ancient Egypt.[10] Today, extended forms of human enhancement are known as 'Transhumanism'.[11]

Human enhancement beyond the ordinary faculties is a staple in literature, science fiction or otherwise. Arnold Bennett wrote in 1909 of 'The Human Machine', whereby personal betterment could be achieved by thinking about the mind as an organised machine; that in order to be in control of oneself, one has to make the habit of controlling one's brain. Far from being a science fiction narrative, 'The Human Machine' was a self-help book – a study guide. The key concept of L. Ron Hubbard's 'Dianetics' (1950) is that 'the problem of the human mind was a problem of engineering and that all knowledge was surrender to an engineering approach.'[12] Hubbard was famously a science fiction novelist himself, and rebranded 'Dianetics' within the fictional narrative 'Battlefield Earth' (1982). In science fiction, transhumanism is translated through cybernetics, that is embodied systemic processes, and represented visually through robotics or cyborgs. And this is where we come to a fork in the road.

As with nature, the human manages, tends, and domesticates technology according to requirement, however nature is placed at arm's length – it is ultimately subject to its own biology, separate to human biology. Advancements in technology – particularly biotechnology – allow humans to demonstrate an exceptionalism beyond the reach of nature itself. The question then is how far does the human accept technological innovations into their own biology? To negotiate an answer to this question, we can return to science fiction.

In Fritz Lang's 'Metropolis' (1927), workers are integrated into the technology of industry – they are a mechanism by which industry functions. Ostensibly a dystopian vision, with the workers living and working in subterraneous chambers, it is nevertheless representative of Taylorism, named for its theorist Frederick Winslow Taylor, which analysed efficiency workflows in factories. The study of human labour processes, Taylorism effectively argued for the worker's actions to be mechanised – reduced to a few core actions that they could be intensively trained in. In 'Brave New World' (1932), Aldous Huxley described genetic engineering in the womb and youth indoctrination for the aim of creating a balanced society. Soma, a drug that induces happiness without the reduction of faculty, is administered in order to keep workers working efficiently. In both of these cases, society is divided between those 'mechanised' and those subject to their own free will. E.M. Forster provides a similar vision in his 1909 short story 'The Machine Stops'; H.G. Wells' 'The Time Machine' (1895) provided an analogous example with the Eloi and the Morlocks.

This piece of writing began with the Anthropocene but suggests that the nature of that inquiry has developed at a rate that extends beyond just the boundaries of the human and the ecologies with which it intervenes. Complex biotechnologies are normal in today's world. Pacemakers, for instance, were once considered exceptional in how they delivered electrical impulses to irregular heartbeats. Today, they are commonplace. Bionic limbs are being provided to amputees. They can be faster, stronger, and more powerful than biological limbs – smaller, lighter, interchangeable. 'More human, than human', as Eldon Tyrell states of his Nexus 5 cyborg in 'Blade Runner' (1982). Modern bionic limbs often utilise myoelectrics; these are the electric properties of existing muscles within the biological limb, which are then activated and powered by external batteries. A more

contemporary approach is osseointegration, whereby the prosthetic is integrated skeletally through the residual limb, thereby providing greater stability and weight-bearing, allowing bone and muscle to generate around the integrated skeletal implant, and provides less of a reliance on the battery-operated motor. As Freeman Dyson speculated, the path to domesticated biotechnology is clearing. Gene editing is currently being tested – the most well-known being CRISPR-Cas9, a genome-editing biotechnology that makes bioengineering possible. The technique, which first successfully edited human embryos in 2017,[13] is being considered as the engine that is driving therapy and reductions of cancers, sickle cell disease, cystic fibrosis, and other diseases currently, with the potential for all diseases in the future. Known as 'germline engineering', DNA alterations made in the embryonic stage of human development would become inheritable traits.

Writing in 2002, Francis Fukuyama called for the government regulation of biotechnology, arguing: 'by tinkering with the genetic constitution of humans we risk undermining the ideal of personal autonomy and destroying the basis of moral equality.'[14] Marcuse as well argued for the case in his essay on technological rationality: '…we may define the individual as the subject of certain fundamental standards and values which no external authority was supposed to encroach upon.'[15] To foreground the words that follow, it is worth quoting Marcuse at length:

The individual, as a rational being, was deemed capable of…his own thinking and, once he had acquired freedom of thought, of pursuing the course of action that would actualize them. Society's task was to grant him such freedom and to remove all restrictions upon his rational course of action.

The principle of individualism, the pursuit of self-interest, was conditioned upon the proposition that self-interest was rational, that is to say, that it resulted from was constantly guided and controlled by autonomous thinking. The rational self-interest did not coincide with the individual's immediate self-interest, for the latter depended upon the standards and requirements of the prevailing social order…Men had to break through the whole system of ideas and values that conformed to their rational interest. They had to live in a state of constant vigilance, apprehension, and criticism…This, in a society which was not yet rational, constituted a principle of permanent unrest and opposition. For false standards still governed the life of men, and the free individual was therefore he who criticized realization.[16]

The Ludovico Technique in both the novel 'A Clockwork Orange' and its film adaptation[17] takes up a remarkably short amount of space within the broader plot, despite its position as the central plot device for the overall narrative arc. The technique, which involves drugging Alex, binding him to a seat, clamping his eyes open, and forcing him to watch a cinema of ultraviolence, has the aim of reconfiguring his brain activity to find horror in violence rather than joy. Yet, for all its brevity, this piece of writing will argue that it provides the viewer with the tools to negotiate the core concepts of the novel/film. The technique suggests that the novel and film are works of science fiction and, as such, present contemporaneous analyses of social systems and processes. Looking back 'A Clockwork Orange' from our present-day perspective can provide more precise critical insights into the social problematics of allowing the interjection of technologies into human biology. It allows us to speculate upon the moral and ethical problems of the contemporary situation at arm's length.

The framework for this analysis began with the Anthropocene, and if that concept suggested that human interventions into the natural environment have been a deciding factor in the behaviour of the broad environmental ecology, the legacy of the Anthropocene is one where domesticated, packaged, and managed technologies are accelerating the effects of human control over the natural state of being. The Ludovico Technique is a case study for what we can consider the post-Anthropocene to be: the Technocene – and Alex becomes the participant in an experiment for the future of man.

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To understand the effects of the 'Technocene', we can first undertake a short analysis of how both Anthony Burgess and Stanley Kubrick demonstrate his evolution. The use of language in 'A Clockwork Orange' can be thought of as a system by which we, the reader, measure the values of each character. It is a method used to great effect by Vladimir Nabakov in the novel 'Lolita' (1955). The reader can, if not forgive, often forget the primal barbarity of Humbert Humbert's actions by virtue of the eloquence with which he narrates his story (not a dozen sentences into the novel he gives this abstract self-reflection: 'You can always count on a murderer for a fancy prose style.'[18]) It's not a trope that Stanley Kubrick actively lifted in his 1962 adaptation of the novel. His Humbert, played by James Mason, often aborts his speech, left stilted in the presence of Dolores Haze. The linguistic acrobatics are more prominent from the film's main antagonist, Clare Quilty, played by Peter Sellers (who, at one point, even accuses Humbert of being overly repetitious in his ineloquent speech). Kubrick was famously enamoured by Sellers' improvisational skills ('He was also the only actor I ever knew who could really improvise,'[19] he told biographer Roger Lewis), and this

was made clear in the publication of Nabakov's original script for the film *Lolita,* which significantly limits Quilty's dialogue. For all of his directorial prowess, Stanley Kubrick was not known for writing dialogue that showcased a character's inner being.

Certainly, Alex 'The Large' chooses his language deliberately – obtuse, with his own poiesis – a truly original concoction of words. The reader/viewer doesn't know whether those combinations of words have ever been used before in those precise sequences, if those words are a common currency, or whether Alex is making up some of them on-the-spot.

Ben Masters describes Anthony Burgess as 'an aesthete, in the broadest sense, and [how] aesthetic appreciation is the best way in [to his use of language].'[20] Masters goes on to note how the theme of free will and moral choice recurs through Burgess's works and that his examination of this theme is probed through 'style', notably in wordplay. Alex's mastery of language – switching imperceptibly between *nadsat* and Queen's Register English – we can place firmly as Burgess's work. The novelist has often reflected upon Alex's exceptionalism, as we will come to see, and it is never made explicitly clear in either the book or the film whether other gangs speak *nadsat* as proficiently, consistently, or as eloquently as Alex.

Alex is a character of excess. His language – in narration or conversation – is verbose. His descriptions bilious with visceral detail. Here, describing bringing himself to orgasm:

Then, brothers, it came. O bliss, bliss and heaven, oh it was gorgeousness and georgeosity made flesh. The trombones crunched redgold under my bed, and behind my gulliver the trumpets three-wise, silver-flamed and there by the door the timps rolling through my guts and out again, crunched like candy thunder. It was like a bird of rarest spun heaven metal or like silvery wine flowing in a space ship, gravity all nonsense now. As I slooshied, I knew such lovely pictures. There were veeks and ptitsas laying on the ground screaming for mercy and I was smecking all over my rot and grinding my boot into their tortured litsos and there were naked devotchkas ripped and creeching against walls and I plunging like a shlaga into them.[21]

For Burgess, high moral values were predicated on linguistic particularity and wordplay. Though he alludes towards physical, sexual violence, his descriptions are vivid - sumptuous. This is further evidenced in later works, including 'Nothing Like the Sun', 'MF', and 'Earthly Powers'. The individual's use of language was a means for existing in and traversing through the difficulties of moral social choice. Alex's social morality is skewed towards the self – defiantly anti-social – and yet he is often defined as an 'antihero', though there is little evidence that his actions can be taken in any way as 'heroic'. For Burgess, a baroque literary style related intimately to questions of free will.

At the beginning of the book and the film, Alex is a human being endowed, perhaps overendowed, with three characteristics that we regard as essential attributes of man. He rejoices in articulate language and even invents a new form of it.[22]

Burgess here expressly states that *nadsat* (at least Alex's individual form of the subcultural language) is Alex's own invention. In his language, Alex plays with his own form of personal autonomy; his speech is unrestricted by the structured elements of formal language, and therefore of the restrictions of formal society. He is free to create language – he is articulate enough to create his own society – and he relishes the opportunity to both manifest that freedom through his language and through the society of droogs that he leads.

Stanley Kubrick selected Malcolm McDowell for the role of Alex based upon seeing the actor in director Lindsay Anderson's 'if…' (1968), in which McDowell played a revolutionary lower-sixth schoolboy at an English public boarding school. That character, Mick Travis[23], like Alex, suffers the establishment as a behemoth that must be fought. Like Alex, Mick trades heavily on natural charisma to achieve his goals. Much of these characters 'successes' lie in how much they are able to negotiate relationships with those amongst them. When Alex is visited at home by his probation officer, P.R. Deltoid, his language recedes away from his flowery, tribal lexicon to one that is formal and readily understood. In doing so, he places himself at a level alongside Deltoid, as a peer rather than as his charge (at one point calling Deltoid 'brother', before correcting himself to say 'sir', dealt with a rather patronising smile by McDowell in the film version). Alex's formal articulation enrages Deltoid because he knows the insincerity with which it is delivered, yet that formal articulation is a barrier that Alex erects because he knows that Deltoid – and others within mainstream society – cannot overcome it. For Alex, this formal articulation is a form of lower-level engagement and mainstream society is ill-equipped to manage Alex at his highest form of self.

Kubrick has McDowell perform this scene in near-nudity, wearing just a pair of Y-Fronts, against P.R. Deltoid's full suit, shoes, and overcoat. A visual representation of the differences in power within formal social structures, and of how, in this scene, Alex remains close to his primal self, despite his unnatural shift in communication. McDowell recalls speaking to Lindsay Anderson of his casting by Stanley Kubrick for the film 'Clockwork Orange' and asking for advice on playing a character with some similar attributes to Mick Travers. McDowell remembers how Anderson reminded him of a scene from '*if...*' where Mick has the camera approach him in close-up and he sees, off-screen, the fact that he's about to be severely. He delivers then '…that smile. That sort of ironic smile.'[24] McDowell goes on to say that was all the direction that he needed to develop Alex into his own character, and it's a smile that is almost permanently on Alex's face, at least throughout the first act of the film, and again in scenes at the film's climax.

In his analyses of social order, Max Weber describes charismatic authority as one in which certain individuals are set outside of the everyday social order by virtue of characteristics that endow their personality with a sense of almost superhuman or specifically exceptional powers or qualities.[25] That smile is a knowing smile, easy to Alex's lips; a smile that he uses to lure girls from the record shop to his bed, and that remains (albeit briefly) as Deltoid – disappointed and angry at Alex's false promises to be 'good' – blankets it with spit in the face. It's a smile that comforts F. Alexander, when Alex enters his home and his arms – cold, beaten, wet, and destitute – years after his first visit. It's a smile that betrays the violence that he and his droogs enact upon the tramp that is their first victim in the film. There are multiple instances of Alex flashing a 'zooby smile' in the book 'A Clockwork Orange', but often the smile is a cover for Alex's insincerity. Even the Minister of the Inferior *(sic)* highlights how 'Prison taught him [Alex] the false smile.'[26] Certainly, that is the case for Malcolm McDowell's Alex, but the film version offers something more: that smile is a

sign of pure enjoyment, of sheer thrill of living, of being one's own charge. Weber goes on to note how one aim of leadership is to demonstrate positive influence and autonomy of action.[27] That is a smile that is uniquely McDowell's Alex.

The success of any film adaptation of a novel relies on the director selecting actors that can embody the attitude of a character that has previously only been described. The confidence that Alex projects in the novel is manifested by his language. Kubrick retains much of that language, often word-for-word, but the screen version of Alex inhabits McDowell's body. Alex is a character that both repels and appeals to audiences precisely because of the confidence that Alex projects. He struts and strolls through every scene; always the centre of attention. He jumps, shifts, prowls, tap dances between secondary characters (in 'A Clockwork Orange', every character is second to Alex). Every situation is his to manipulate. When the Secretary of the Interior is inspecting the prison grounds, despite the fact that Alex is one of many prisoners lined up, in uniform and to attention, he assures that his presence is heard. When first arriving in prison, upon being told to empty his pockets, he saunters to the desk before being barked back behind the oche. He feigns insouciance as he then hands over his personal items one-by-one. Burgess defines Alex by his mastery of communication; Alex lives through Malcolm McDowell's body. He is elevated, stylish. If Stanley Kubrick's films ever shared a common criticism, it was that the dialogue in his films was often mannered (hence his reliance on charismatic or crazed leads: Peter Sellers, Jack Nicholson, Kirk Douglas – even the easy charm that William Sylvester brough to Heywood Floyd in '2001: A Space Odyssey' (1968) or Matthew Modine to Pvt. Joker in 'Full Metal Jacket' (1987). Kubrick himself was the great visualiser – never the great writer.

Alex (as a character, not a creation) feels designed. Imbued, and thereafter empowered, with a sense of the linguistic, a conversationalist of not necessarily great intellect but of great instinct, and somebody who understands that power comes from the mind but is demonstrated through forceable action. His family life is thoroughly ordinary, working class, little by way of opportunity to climb the social ladder. The society of the novel and of the film is non-meritocratic. If it were, Alex displays all of the qualities to reach the very top. But society doesn't interest Alex, only satiating the self. In the film, he dresses in a bowler hat, an engorged codpiece, bully-boy boots, and trousers, shirt, and braces of the whitest white, barely noticeable, as though it were his own skin. Over one eye is a false eyelash.

At the end of the eighteenth century, a phenomenon called the Great Male Renunciation occurred in western society. A sartorial trend, the adorned, embellished, and beautified clothing that had defined aristocratic male fashions hitherto began to fall out of fashion, in favour of functional civic garments (also, revolutionary clothing). Prior to this, male clothing of the upper classes were used to flaunt one's wealth, stature, and social autonomy. The macaroni, as a figure, was described as '…a kind of animal, neither male nor female a thing of the neuter gender, lately [c.1770] started up among us. It is called a macaroni. It talks without meaning, it smiles without pleasantry, it eats without appetite, it rides without exercise, it wenches without passion.'[28] The macaroni was a flamboyant, extroverted character; a sartorial parody of the fashions of polite eighteenth century society. The macaroni was the immediate precursor to the dandy: the modern, fashion-oriented, clean, formal, bright, showy mode of style as evidenced by London socialite Beau Brummell. Brummell would famously spend hours daily cleaning his teeth, shaving, bathing, and dressing. At Eton, he wore a gold buckle on the school uniform cravat. While studying at Oxford University, he designed his own clothes and left after a little over a year. In societies of strict social structure,

to be autonomous of one's own decisions is rare. Autonomous actions require some kind of freedom – economic, for instance. By his own admission, Alex neither needs nor cares for wealth because everything he desires he can take and then discard and then take again. Alex takes great pride in his mind and in his body. His desires emerge from lack (social lack) and his knowledge that he has both the mental and physical abilities to feed his desires. He is marginalised within his society, but it's a self-actualised alienation. He demonstrates little-to-no remorse for the well-being of his fellow citizens, only what he can take from them to feed his own strengths. He has no desires to be a prominent, upstanding member of society because he would be then subsumed by the structures of that society and have his behaviours governed by it.

In a society in which one suffers from alienation, the only things one has is their mind and their body. Alex's style is so important because it is his mode of representation: his style is the manifestation of a process of design used to politicse his body. The fake eyelash is a throwback to the 'feminine' male styles of the pre-Enlightenment era. The bowler hat an artefact of city bankers. The boots, proto-Oi! punk. In writing on the punk movement, sociologist Dick Hebdige draws upon the example of the swastika. In the hands of the punks, the swastika became a very powerful and complex symbol. Hebdige notes how the symbol of the swastika was made available to young generations through its associated uses in popular culture (via, for example, the fascistic imagery of David Bowie and Lou Reed), which thereafter allowed its appropriation by the youth. For the punks, the symbol of the swastika had been wilfully removed from its association with Nazi Germany. Writes Hebdige: '…within an alternative subcultural context, its [the swastika's] primary value and appeal derived precisely from its lack of meaning: from its potential for deceit. It was exploited as an empty effect.'[29] Hebdige asserts that the punks used the symbol of the swastika in order to find a 'relative autonomy', by acting in an anti-social manner and by

manifesting contradictory symbols. Alex, too, finds his autonomy by exploiting his own self in various manners. Creating language that isolates himself from society; wearing clothing that variously alludes to styles associated with gender, wealth, and class. For the punks, Hebdige notes that '[t]he key to punk style remains elusive. Instead of arriving at the point where we can begin to make sense of the style, we have reached the very place meaning itself evaporates.'[30] If we were to align this with Alex, we can begin to see how all the manifest signs of personal autonomous action may have actually – to the mainstream – had the opposite effect than that which he desired. The dress, language, and actions of an independent body and mind made him free of his society's hegemonic structures; an independent mind and an independent body. 'Enterprising, aggressive, outgoing. Young. Bold. Viscious.' The perfect candidate for a new kind of biomedical behavioural correction technique.

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Theories of the Technocene evoke a practical, day-to-day nightmare of insidious social engineering. The black box of technology controlling the relationships of groups and individuals. The realities are different. In addition to the examples of surgical biotech outlined above, we, every day, continue to use technology as self-monitoring devices. We check the time on our phones and watches; we use FitBits to count our steps and calories; we set alarms to make sure we're on time for our Teams meetings; we coordinate on Slack. Depending on one's own perspectives, these are either self-determining processes or they are the future of workers predicted in Fritz Lang's 'Metropolis' almost a century. The philosopher Jacques Ellul wrote extensively on personal freedoms and their relationship to technology, and warned of encroachments on free will – warned

of the tyranny of technology – but maintained the view that regulated technology would enhance human society to absolute efficiency.[31] This perspective takes at its core the same position posited by Herbert Marcuse, as noted above. The difference in these perspectives is that Ellul posits towards the constructed technological society where Marcuse negotiates between the development of a technological society and man's self-interests during that process of construction. If we encounter the present moment between the Anthropocene and the Technocene, we see ourselves as positioned somewhere between two the perspectives.

We manage and maintain our own efficiency and, in this sense, we do to ourselves what factory owners did to workers. But if the pandemic has taught us anything, it is that present social orders are unsustainable for the majority and we have to examine our own self-interests in the contexts of social interests in order to design new futures. Donna Haraway writes of the cyborgian nature of contemporary society, 'social reality [being] lived social relations….we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs,'[32] each knowing self only being a partial identity that is fragmented, joined, and stitched among others and other technologies. She warns of its dangers, asserting that modern modes of technological production make 'the nightmare of Taylorism seem idyllic.'[33] The identity of the self is one of auto-bricolage, determined by what society deems important. A cyborgian future may, to many, appeal – particularly those who can benefit from surgical biotechnology. It provides an equity of embodied experience. The danger – that danger first identified in 'The Time Machine' – is to what extent mechanisation of humans will make redundant human faculties. Secondarily, the perspective put forth by, for instance, L. Ron Hubbard, who proposed that 'the problem of the human mind was a problem of engineering and all that knowledge would surrender to an

engineering approach,'[34] which evokes the image of a 'cult' of the engineered, in awe of the engineer.

The proposition of these concepts is that there is a glorious, shared future for mankind that technology can attempt to attain, that technological interventions into the biology of humans can extend faculties (perhaps even life itself), and that this is a utopian project. The implications are that there are desirable human traits and that there are undesirable human traits, and biotechnology can be utilised to remove the undesirable traits. Around the same time as the publication of 'The Time Machine', German physician Max Nordau published 'Degneration' (1892), with the premise that the decline of European civilisation is due to the cultural and physical decline of its peoples, quoting 'degenerate art' and the industrial revolution as the main causal factors. He identified collapse in society through means including physiognomy, for instance. Also around this time, Sir Francis Galton, the British scientist and cousin of Charles Darwin, produced scientific papers promoting eugenics, social Darwinism, and inherited intelligence. Galton also noted the collapse of moral society at the hands of the 'corrupted', pointing evidence towards those with degenerate social principles and low genetic worth.

If the pandemic has taught us anything, it is that technology can be used to exacerbate poverty; how technology can highlight wealth disparity, literacy, personal and independent space. Alex, as a willing subject to the Ludovico Technique, asserts the strength of his own independent mind and body to resist any form of aversion therapy. His first mistake is to underestimate the power in the apparatus of state-instituted violence. The eugenic programmes suggested by figures like Sir Francis Galton indeed would encourage individuals to defer autonomy to the state, all for the

greater good of society. And, indeed, Alex enters the process of independent body and mind, and leaves it mentally and physically poorer. Both Burgess and Kubrick highlight this fact. When faced with threatening behaviour, Alex crumples into himself, a wretched figure, belching away, without control of his bodily functions. The usually erudite and manipulative young man, when faced with the fact that his parents have rented out his bedroom to a lodger, unable to sweet-talk or subject them to emotional blackmail, Alex is left without his words. He attempts a return to violence, only to be stopped by an involuntary physical revulsion. By virtue of being physically unable to do anything 'bad', Alex has become 'good'.

Advances in technology and biomedical research have led to a reconsideration of eugenics in the twenty-first century. The ethicist Nicholas Agar argues for the rebranding of certain, technology-based, eugenics programmes not as 'eugenics' itself (a term deeply-rooted in western culture by its usage in human experimentation by the Nazis and Japanese during World War II) but as 'life plans of future persons,'[35] or simply as 'liberal eugenics'. To underline his assertions, he notes support in the subject by figures including James Watson (who, along with Francis Crick proposed the double helix structure of the DNA molecule), among others. Writes Agar: 'I argue that respect for the life plans of future persons can constrain parental choice in a way that sharply distinguishes the new eugenics from its ugly ancestor…A eugenics program appropriately sensitive to the range of potential life plans of future persons will not seek to enhance capacities with any one life plan in mind.'[36] His definition here that eugenics can be wilfully removed from the state apparatus; precisely the opposite of Francis Fukuyama's call for biotechnology to be regulated. Agar and Fukuyama see personal autonomy as being driven from different positions.

Agar's technocracy has gathered support – even the United Nations International Bioethics Committee updated their position on the human genome and human rights to reflect that technological advancements in genetics means that 'new' eugenics should not be subject to the same ethical standards as those from the twentieth century.[37] It is worth remembering here that Dr. Egas Moniz was awarded the Nobel Prize in 1949 for his development of psychosurgery, specifically cerebral angiography and prefrontal lobotomy, as a cure for (perceived) mental illness, the perpetration of violent acts being one such example.

Despite being the central plot device, the Ludovico Technique is quickly rubbished by both Burgess and Kubrick. As noted above, this is demonstrated by Alex's mental and physical regression, but also through his treatment by others. Almost immediately, he is subject to violence by otherwise 'good' people – the community of tramps, protecting the honour of one of their kind previously beaten by Alex and his droogs; his beating by Dim and Billy Boy, in the book, George in the film, now policemen (enforcers of the state apparatus); and his torture by F. Alexander and his cronies. The difference between 'good' and 'bad' is negated. Violence can be – and is – perpetrated indiscriminately. The Ludovico Technique itself is of little-to-no value.

What the technique demonstrates is Burgess's assertion that 'good' cannot be enforced upon people. Burgess refers to his religious beliefs. Raised into Roman Catholicism, Burgess later considered himself lapsed, but nevertheless continued to identify with the religion throughout his life – it being a theme consistent in his works. In a 1973 essay for 'The New Yorker', he cites Catholic theology as centrally one of free will: 'Catholicism rejects a doctrine that seems to send some men arbitrarily to Heaven….Your future destination [ie. the afterlife]…is in your hands.'[38]

It is in this essay that the paradox of free will and predestination converge, Burgess states that the parallel narrative ‘needs some explaining’. At length:

Sean O’Faolain, in his autobiography, records an inability to reconcile man’s free will with God’s total knowledge which was resolved—in a sudden magical or miraculous flash of insight—one day before a taxi ride in Manhattan. O’Faolain put it to himself this way: Any action of man remained a free action until it was performed. Once performed, it became something God had willed. He and the taxi-driver got drunk on this discovery.

…

What I do suggest is that religion, and such secular or anthropocenic disciplines as philosophy, psychology, and sociology, have something in common, and that is an awareness of the abiding fact of man’s unhappiness. And it would seem that certain words of ancient provenance – like ‘good’, ‘evil’, ‘free will’, even ‘original sin’ – do not have to be superseded by pseudo-scientific terminology just because they happen to derive from a God-centred approach to man.

For early proponents of behaviourial clinical therapies, a process like eugenics was actively adopted by western religion as a way to return to a ‘God-centred approach to man’, one that demonstrated the exceptional nature of man, in God’s image, of genetic purity and its potential influence on social reform. ‘Scientific’ approaches to genetic reorganisation were actively encouraged (though this author argues that if lobotomies were invented in the concentration camps, they would never have achieved social recognition). There lies the rub. The categorisation that hereditary issues are scientific concerns, where this author argues that they are technological, and therefore dependent on cultural appropriation of technologies and those technologies’ intended

and unintended social consequences, to borrow a phrase from Marshall McLuhan.[39] Sciences – even pseudo-sciences – are relevant until not, but they remain under constant development of research. Technologies are subject to similar cycles, but technologies (through objects and processes) interject directly into everyday life. With every technological intervention, there is a rupture from one way of living into the next. The Technocene has normalised these ruptures, and we won't be as lucky as Alex to be able to return from where we came.

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2 Orr, David W., (2002) The Nature of Design: Ecology, Culture, and Human Intention (New York: Oxford University Press) p.11

3 Asafu-Adjaye, John, et al. (2015) An Ecomodernist Manifesto (2015) [online]. Available at: www.ecomodernism.org (Accessed: 06 April 2021)

4 Woese, Carl R., (2004) 'A New Biology for a New Century', *Microbiology and Molecular Biology Reviews* [online]. Available at: https://mmbr.asm.org/content/68/2/173 (Accessed: 06 April 2021)

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6 Ibid.

7 Ibid.

8 Ibid.

9 Marcuse, H. (1941) 'Some Social Implications of Modern Technology', in Arato, A. & Eike, G. (eds.) (1982) *The Essential Frankfurt School Reader* (New York: The Continuum Publishing Company) p.139

10 (2012) 'Egyptian toes likely to be the world's oldest prosthetics', *The University of Manchester* [online]. Available at: https://www.manchester.ac.uk/discover/news/egyptian-toes-likely-to-be-the-worlds-oldest-prosthetics/ (Accessed: 06 April 2021)

11 A key difference between 'standard' enhancement technologies (prosthetics, plastic surgery, pacemakers, even spectacles) and transhumanism is that the latter considers enhancements that go beyond natural human faculty.

12 Hubbard, L.R. (1950) *Dianetics: The Modern Science of Mental Health*. California: Bridge Publications.

13 Conner, Steve (2017) 'First Human Embryos Edited in U.S.', *MIT Technology Review* [online]. Available at: https://www.technologyreview.com/2017/07/26/68093/first-human-embryos-edited-in-us/ (Accessed: 06 April 2021)

14 Fukuyama, Francis (2002) *Our Posthuman Future: Consequences of the Biotechnology Revolution*. London: St. Martin's Press, p.29

15 Ibid 8.

16 Ibid 8. p.140

17 For the purposes of this piece of writing, 'A Clockwork Orange' will refer to the novel by Anthony Burgess, 'Clockwork Orange' to the film by Stanley Kubrick, drawn from the original theatrical poster, which used the same title.

18 Nabakov, Vladimir (1955) *Lolita*. London: Penguin.

19 Lewis, Roger (1995) *The Life and Death of Peter Sellers*. London: Arrow.

20 Masters, B. (2017) 'The Higher Morality: Anthony Burgess and the Business of Moral Choice', *Novel Style: Ethics and Excess in English Fiction since the 1960s*. Oxford: Oxford University Press. p.28.

21 Burgess, Anthony (1962) *A Clockwork Orange*. London: Penguin.

22 Burgess, Anthony (2012) 'The Clockwork Condition', *The New Yorker*. 04-11 June 2012.

23 The character Mick Travers reappears in later Lindsay Anderson films O Lucky Man' (1973) and 'Britannia Hospital' (1982), not with the same characteristics but as a *Zelig*--type character, whose personality adapts according to the needs of the story.

24 Ryan, P. (2004) Malcom McDowell. *BFI Interviews*. Interview transcript. 07 November 2004. [online] URL: https://web.archive.org/web/20081121175939/http://www.bfi.org.uk/features/interviews/mcdowell.html (Accessed: 06 April 2021)

25 Weber, M. (1947) *The Theory of Social and Economic Organization*. Glencoe, Il: Free Press. p.369.

26 Burgess, A. (1996) *A Clockwork Orange*. London: Penguin. P.74

27 Ibid. p.328

28 Joseph Twadell Shipley, *The Origins of English Words: A Discursive Dictionary of Indo-European Roots* (JHU Press) 1984:143.

29 Hebdige, D. (1979) *Subculture: The Meaning of Style*. London: Routledge. p.117.

30 Ibid.

31 Ellul, J,. (1954) *The Technological Society*. New York: Vintage.

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33 Ibid.

34 Ibid. 11

35 Agar, N. (1998) 'Liberal Eugenics' in *Public Affairs Quarterly*. Vol.12, No.2, April 1998. Pp.137

36 Ibid.

37 United Nations International Bioethics Committee (2015) *Report of the IBC on updating its reflection on the Human Genome and Human Rights*. 02 October 2015 [online] URL: https://unesdoc.unesco.org/ark:/48223/pf0000233258 (Accessed: 06 April 2021).

38 Ibid. 21

39 McLuhan, M. (1964) *Understanding Media*. London: Routledge (2nd edition, 2001).