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CHEKHOV'S GUNS:

TECHNOLOGY, DESIGN, AND INTENTION IN NARRATIVE FICTION

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ABSTRACT

This dissertation intervenes both in studies of narrative fiction and science and technology studies (STS) by proposing a new mode of reading technological objects. It develops a design-oriented approach to reading technology in literary texts and practices a literary approach to reading technological objects in themselves. Current scholarship on technology, even within literary studies, is dominated by philosophical and sociological approaches, which tend to treat technological objects as ready-made. I argue that we must instead encounter technologies as designed objects – objects that embed the intentions and worldviews of their makers and users – and that a literary approach provides us with the methods to do that.

Literature is a privileged site for reading technology, because it renders technological objects discursive. Description breaks the objects into parts. A gun is not just a gun. It is a trigger, a barrel, a magazine; it contains springs, levers, pistons. Even when such an object is named as a whole, it asks readers to consider a variety of potential actions afforded by its design. Reading for design means examining both the technological object's own design and the narrative design that embeds it. Technological design in fiction is thus a kind of interiority, something that illuminates the causal developments informing a technology's actions. But it is also a kind of exteriority, expressing the world that designers and users want. In this way, it offers critical insight into whom technologies and their worlds are made for. Design illuminates the implicit biases in our assessments of technological objects, in that technologies replicate and amplify the relation to dis/ability, race, gender, class of its designers and users.

Conversely, technology is also an important component of literary design. Technological objects occupy a particular narrative position, one that is not subsumed under the category of setting and is not dismissed as merely descriptive detail for the sake of realism. They are sites

around which plots develop, worlds are built, and characters interact. The narrative principle that we have come to associate with Chekhov's precept for plot construction – "If you say in the first chapter that a gun is hanging on the wall, in the second or third chapter it absolutely must go off" – is less about minimizing verbosity in a strict sense than about the importance of developing causal relations between technologies and their actions in fictional worlds. Reciprocally, a gun that goes off in chapter two or three should probably be introduced in chapter one. This causal narrative of technological action fills in the space between makers and users of technological objects, as it makes the objects' designs legible. What the author and character do with a technology makes the intentions of its designers and users visible. If commodity fetishism explains why we treat objects as ready-made, this dissertation explores how reading design offers a way to uncover the people relations obscured by capitalist modes of production.

The chapters are organized into the three variations on Chekhov's principle of the gun – that is, three facets of technological intention in fiction. Each chapter explores an aspect of technological design and intention through a literary category. The first chapter, taking the knife-gun in Emily Brontë's *Wuthering Heights* as its case study, focuses on the designer end of technology and how a designer's embedded intentions inform the convention of technological accidents as plot devices. The second turns to the bomb scene in Joseph Conrad's *The Secret Agent*, to address the user end of technology and how a sense of shared assent to the usage of a technology implies a utopia. The third uncovers the legacy of an invisible gun in an early draft of Ralph Ellison's *Invisible Man*, as an allegory for the invisible labor of operators of technology, whose invisibility is a corollary of the aesthetic of the technologies they operate. Together, these guns assemble to generate an account of the relations between people that underlie technological objects.

"Gun No.1: Design, Plot, Narrative Accident" establishes what it looks like to read for design. Working with writings of the *Bauhaus*, I cultivate an awareness of design that is rooted in what I term compounded intentionality. *Bauhaus* workshops encouraged students to experiment with new and unexpected ways of using materials. The purpose of such experimentation was not so much to discover better ways of working with their material, though students often did, as to become fully aware of why conventional usage has become conventional. An object's design is a result of numerous intentional decisions. I then use this understanding of design to examine the enigmatic compound knife-pistol in Emily Brontë's *Wuthering Heights* (1847). This weapon appears twice in the novel. The first time, its owner Hindley shows it off to Isabella, who describes it as "a curiously-constructed pistol, having a double-edged spring knife attached to the barrel."[3] The second time, Hindley is brandishing it around and Heathcliff attempts to disarm him. In the scuffle, the gun goes off without hitting anyone, but the knife closes onto Hindley's wrist, injuring its user. Examining these two scenes, my reading considers how Brontë narratively sets up for the knife-pistol's surprising action, how she develops both the knife's and the gun's design in such a way that their action can be made sense of. I argue that this knife-pistol, which has been dismissed by critics as nothing more than a curiosity, is actually designed to move the novel's plot toward its denouement. I show, in other words, how reading for the compounded intentionality of design can offer a unique and crucial purchase on narrative action.

"Gun No. 2: Worldview, Utopia, Implicit Sacrifice" turns to users of technology and the far more common scenes of technologies that are considered to work. Whereas a technological object's compounded intentionality can be read directly from its design, our interpretation of whether a technology works is a question of shared intention. Our worldview determines the

actions that are included in our understanding of whether a certain technology works properly and the actions that are excluded. I look to utopian fiction to develop an understanding of how consensus is built around technological objects. Utopia, I argue, is the genre of technology because technologies imply ideal worlds. I illustrate this concept in a reading of the river locks in William Morris's *News from Nowhere*. The locks are considered perfect, not because they never break, but because the inhabitants of Morris's utopia collectively assent to the manner of breakage and repair. That consensus around how a technology works also includes judgment of which forms of malfunction are acceptable, however, means that there is also implicit agreement around what can be sacrificed. Those who lie outside the utopia's ideological borders are left out of its technology's design considerations. In the second half of the chapter, I expand on the consequence of implicit sacrifice in a reading of the Greenwich bombing event in Joseph Conrad's *The Secret Agent* that examines the collective responsibility for the accidental suicide of neurodivergent character Stevie. I then turn to the Gatling gun, a weapon that its creator purportedly believed would reduce violence but instead amplified it, as a historical example of the negotiation of implicit sacrifice. Ultimately, this chapter is about how our worldviews inform the technologies we design, which are in turn indicative of the worlds we want.

"Gun No.3: Concealment, Elegance, Invisible Workers" focuses on operators of technology and develops an account of elegance as the aesthetic of modern technology. In this context, I argue that the category of elegance necessitates a class of workers who are able to read concealed design. In the first half of the chapter, I examine elegance using a variety of texts, ranging from science to interior design to literature, in order to build an understanding of elegance as an aesthetic of concealment. The perceived simplicity of an elegant theory, object, or style is a kind of illegibility – they are, to the uninitiated, largely irreplicable and indecipherable.

In the second half, I turn to a reading of skilled workers in Ralph Ellison's *Invisible Man*, who are able to read the concealed design of technology, but who as a corollary occupy concealed positions and are, in a sense, themselves invisible. Through this reading, I suggest that our aesthetic preferences may expose a preference for a structure of labor organization that degrades its workers.

The coda, "Gun No. 3.1: Action Films and a New Elegance," turns to contemporary action films and meditates on the forms of elegance today. I suggest that technological elegance, from James Bond to Marvel, has taken on a new appearance in the last few decades – one that now obscures the design's concealment of labor and poses additional challenges for reading design.

INTRODUCTION

CHEKHOV'S GUNS: LITERATURE, TECHNOLOGY, INTENTION

> If in the first act you have hung a pistol on the wall, then in the following one it should be fired. Otherwise don't put it there.[1]
>
> - Anton Chekhov

In April 2012, the humor website *McSweeney's* published a satirical listicle entitled "Lesser-Known Chekhovian Techniques." The article devised such spoofs on Chekhov's principle of the gun as "If you say in the first chapter that there is a livestock farmer who is building a prototypical type of fence, then he should show off the completed design in the second or third chapter and proclaim, 'This is what separates us from the animals.' If he is not going to use that line, there is no reason for him to be building the fence." and "If you put a mutilated seagull carcass on stage during the second act, then it absolutely must be taken outside before the third begins. Otherwise shit is going to stink."[2] This listicle is far from the only time Chekhov's most famous compositional principle has come under fire, so to speak. In "The Art of the Short Story," Hemingway similarly ridicules the specificity and determinism of Chekhov's language:

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[1] As translated in Anton Chekhov, "Anton Chekhov 1860-1904," *Oxford Essential Quotations (5 ed.)*, ed. Susan Ratcliffe, (Oxford: Oxford University Press, 2017), https://www.oxfordreference.com/view/10.1093/acref/9780191843730.001.0001/q-oro-ed5-00002871.

[2] David Henne, "Lesser-Known Chekhovian Techniques," *McSweeney's*, April 18, 2012. https://www.mcsweeneys.net/articles/lesser-known-chekhovian-techniques.

> This is unlike what you will hear from your instructors, that if a broad comes into a story in the first paragraph, she must reappear later to justify her original presence. This is untrue, gentlemen. You *may* dispense with her, just as in life. It is also untrue that if a gun hangs on the wall when you open up the story, it must be fired by page fourteen. The chances are, gentlemen, that if it hangs upon the wall, it will not even shoot. […] Yes, the unfireable gun may be a symbol. That is true. But with a good enough writer, the chances are some jerk just hung it there to look at. Gentlemen, you can't be sure. Maybe he is queer for guns, or maybe an interior decorator put it there. Or both.[3]

The principle is generally understood as advocating a kind of minimalism with an emphasis on plot relevance and continuity, and the gun tends to be interpreted analogically as a formula that has taken on a life of its own.

But Chekhov himself wrote plenty of unfired guns into his works, even proudly declaring in a letter to his wife that in *The Cherry Orchard* "there's not a single pistol shot in the whole play,"[4] a play that features a character who declares "I am an educated man, I read various remarkable books, but I cannot understand the direction I myself want to go – whether to live or to shoot myself, as it were. So, in case, I always carry a revolver about with me. Here it is. [Shows a revolver.]"[5] In the short one-act play *The Bear*, a man who feels that he has been insulted by a woman challenges her to a duel, which she accepts. After explaining to her how to use a pistol, he declares that he loves her. But as she responds with laughter and insists that they duel, he loads his gun. He then continues to tell her how he loves her and she continues to insist

[3] Ernest Hemingway, "The Art of the Short Story," *The Paris Review*, January 11, 2017. https://www.theparisreview.org/letters-essays/3267/the-art-of-the-short-story-ernest-hemingway.

[4] Anton Chekhov, *The Oxford Chekhov Volume III: Uncle Vanya, Three Sisters, The Cherry Orchard, The Wood-Demon*, trans. and ed. R. Hingley (London: Oxford University Press, 1964): 320.

[5] Spoken by Yepikhodov in Chekhov, *The Cherry Orchard*, Act 2.

that they fight, before she ultimately changes her mind and they kiss. No gun ever goes off. Why, then, does Chekhov choose the figure of the gun to exemplify his principle?

The answer is that the gun in Chekhov's principle is not really a gun at all. Rather, it is a figuration of intention. Whether the author intends for the gun to go off or not, the presence of the gun raises the possibility of it going off. And Chekhov is probably right that many of us are likely to interpret the appearance of a gun in a story in such a way. The potential actions specific to a gun are fairly defined in scope. It will either go off, or it will not. A gun could, of course, be reappropriated as a paper weight or a hammer, or as part of the décor as Hemingway suggests, but even in those forms of usage the question of whether it will go off arguably remains. The design of a gun is fairly legible, and the appearance of a loaded gun would offer audiences and readers potential information about the intentions of both the author who writes it in and the characters who interact with it.

In this dissertation, I take up Chekhov's intuition about the legibility of intentions in technological objects critically. I develop a design-oriented approach to reading technology in literary texts, which also informs a hermeneutics for reading technological objects in themselves. Current discussions in literary studies around technology, primarily engaging with sociological and philosophical approaches such as actor-network-theory, new materialisms, and posthumanisms, tend to treat technological objects as ready-made.[6] They start with the fetishized

[6] See Bruno Latour, *Reassembling the social: An introduction to actor-network-theory*, (Oxford: Oxford University Press, 2005); Rita Felski, "Latour and literary studies," *PMLA/Publications of the Modern Language Association of America* 130, no. 3 (2015): 737-742; Jane Bennett, *Vibrant matter*, (Durham: Duke University Press, 2010); Katherine N. Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics,* (Chicago: University of Chicago Press, 2008); Katherine N. Hayles, *How We Think: Digital Media and Contemporary Technogenesis*, (Chicago: University of Chicago Press, 2012); Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," *The Transgender Studies Reader*, (Oxfordshire: Routledge, 2013): 119-134.

object, which in Marx's understanding "reflects the social characteristics of men's own labour as objective characteristics of the products of labour themselves, […] reflects the social relation of the producers to the sum total of labour as a social relation between objects, a relation which exists apart from and outside the producers,"[7] and the interpretive separation of production and product is taken as a matter of fact. I argue that we must instead encounter and read technologies as designed objects – objects that embed the intentions and worldviews of their makers and users. The human relations that have been subsumed under object relations in industrial capitalism nevertheless leave traces in an object's design. Reading design therefore offers a way to uncover the relations between people that are obscured by capitalist modes of production.

The hope for this dissertation is that it can begin to cultivate a new way of thinking about technological responsibility. Analytical philosophers and philosophers of engineering who take up the question of responsibility focus almost exclusively on makers of technology.[8] Responsibility is also, however, a question for the non-specialist, who interacts with technological objects on a daily basis. I want to suggest that we can conceive of responsibility

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[7] Karl Marx, *Capital: A Critique of Political Economy Volume One*, trans. Ben Fowkes (London: Penguin Books in association with New Left Review, 1990), 164-165.

[8] Mary Dixon-Woods and Peter J. Pronovost, "Patient Safety and the Problem of Many Hands," *BMJ Quality & Safety* 25.7 (2016): 485-488; Ibo Van de Poel, Jessica Nihlén Fahlquist, Neelke Doorn, Sjoerd Zwart, and Lamber Royakkers, "The Problem of Many Hands: Climate Change as an Example." *Science and Engineering Ethics* 18, no. 1 (2012): 49-67; Carl Mitcham and L. Westra. *Engineering Design Research and Social Responsibility*. Lanham, MD: Rowman and Littlefield, 1997; Mark Coeckelbergh, "Regulation or Responsibility? Autonomy, Moral Imagination, and Engineering," *Science, Technology, & Human Values* 31, no. 3 (2006): 237-260; Carl Mitcham and René Von Schomberg, "The Ethics of Engineers: from Occupational Role Responsibility to Public Co-Responsibility." *Research in Philosophy and Technology* 20 (2000): 167-192.

not solely in terms of liability, which is about attributing blame after the fact,[9] but also through a forward-looking lens, in which there is something like a collective moral obligation to read for potential action. Assessment of such potential action should not be limited to the category of accident or malfunction; it should also include potentially undesirable consequences of a desired action. As we have lately seen in widely reported cases of bias in algorithms, our implicit biases in relation to dis/ability, race, gender, and class are often replicated and amplified in our technologies.[10] If we go one step further, we might say that continued use and/or acceptance of biased technologies constitutes a form of assent. Reading for possibilities of design allows us to reconceptualize individual decisions in relation to other people.

Though I have learned a great deal and am immensely indebted to the influential theories of Bruno Latour, Katherine Hayles, Donna Haraway, and Jane Bennett, this project turns to Raymond Williams as a methodological forbear for developing a literary approach to reading technological objects. In his criticism of what he interprets as Marshall McLuhan's technological determinism, Williams illuminates the intentional facets of technological production. While my project is not about production history *per se*, Williams's work gestures at ways in which various

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[9] Whereas Sandra Macpherson's account of liability, for example, holds individual persons responsible as long as a particular harm can be traced back to them, even in the absence of direct intention, I seek to expand our understanding of intentionality, to develop a more communal orientation toward responsibility.

See: Sandra Macpherson, *Harm's Way: Tragic Responsibility and the Novel Form* (Baltimore: John Hopkins University Press, 2010).

[10] Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code*, (New Jersey: John Wiley & Sons, 2019); Ruha Benjamin, *People's Science: Bodies and Rights on the Stem Cell Frontier*, (Redwood City): Stanford University Press, 2013; Headrick, Daniel R. *The invisible weapon: Telecommunications and international politics, 1851-1945*. Oxford University Press on Demand, 1991; Alondra Nelson, *The Social Life of DNA: Race, Reparations, and Reconciliation After the Genome*, (Boston: Beacon Press, 2016); Meredith Broussard, *Artificial Unintelligence: How Computers Misunderstand the World*, (Cambridge: MIT University Press, 2018).

types of intentions involving both makers and users of technology are embedded in design. In arguing against determinism, he reads television parts for their individual histories of development and notes the various possible uses they could have and often did have, thus showing that "the technology of transmission and reception developed before the content, and important parts of the content were and have remained by-products of the technology rather than independent enterprises."[11] Williams does not identify design as a particular point of interest – the term does not, for example, figure among his famous keywords.[12] Yet, by attending to the development of technology, he nonetheless reads against the tendency to focus exclusively on a technology's effects and thus brings the question of design into view. While our discipline tends to look to sociology and philosophy to think about technological objects, Williams's work sets the stage for what I call a literary approach to technology.

Chekhov, for his part, enables me to illustrate what a design-oriented approach to reading technology in literary texts might look like. In the chapters of this dissertation, I will expand this approach in readings of Daniel Defoe, Emily Brontë, William Morris, Joseph Conrad, and Ralph Ellison. But Chekhov, as a theorist of dramatic intention known for a compositional principle featuring a technological object, provides a rich starting point for conceptualizing the relation between literary and technological design. His usage of the gun metaphor is part of a larger framework for thinking about composition, which situates intention not only in the author but also in the elements of a story. That the gun is a metaphor only serves to emphasize the legibility of technological design, as Chekhov looks to the lucidity of a loaded gun's promise to help make

[11] Raymond Williams, *Television: Technology and Cultural Form*, (New York: Schocken Books, 1975): 29.

[12] Williams, *Keywords*, (Durham: Duke University Press, 2007).

other points palpable. The concreteness of the object of the gun and the overtness of its intention helps ground the abstractness of intentionality as a concept. Chekhov also occupies a transient historical space in the development of capitalism, as someone writing at a time when capitalism in Russia was in the process of naturalizing[13] – when industrial and preindustrial relations to technology were in direct contention. As Vadim Shneyder notes, Chekhov's time was one when new capitalists were still "confront[ing] the strange new world they had created." [14] Preindustrial ways of life had not yet been completely supplanted by industrial logics, and the two operated concurrently, if also conflictingly.

In the following section, I uncover three versions of Chekhov's principle of the gun, and from them I develop a taxonomy of technological intention. So often excised from its contexts, the principle has itself become a kind of fetishized object, removed from its contexts of production and given a life of its own. Tracking down the full texts and letters in which this principle appears, I uncover not just the intentions embedded in the principle but also the intentions of its interpreters – the intentions, in other words, of its designers and users – to elucidate three facets of reading for design. The first is indirect intention, which accounts for the consequences or effects of avowed intentions. The second is distributed intention, which is intention that is not focalized through a single intending source but rather stems from multiple sources. And the third is a kind of obscured intention – intention that is not easily legible but that can still be read by particular readers. I then move at the end of the section into a reading of Chekhov's short story "A Malefactor," which stages a conflict of preindustrial and industrial

[13] Vadim Shneyder, *Russia's Capitalist Realism: Tolstoy, Dostoevsky, and Chekhov*, (Evanston: Northwestern University Press, 2021): 171.

[14] Shnyder, 148.

values through a reading of technological design, to consider the challenges to reading posed by certain tendencies in the development of capitalism.

A DESIGN-ORIENTED APPROACH TO TECHNOLOGY IN LITERATURE

The form of Chekhov's principle that we most frequently encounter in English can be traced back to I. Ya. Gurlyand's "Reminiscences of A.P. Chekhov,"[15] published in the journal *Theater and Art* (*Театр и Искусство*) shortly after Chekhov's death. The principle appears as part of a list of aphoristic statements by Chekhov that Gurlyand had recorded in his notebooks, transplanted from the context in which Chekhov would have used it. Two other, and lesser known, versions of the principle can provide us with a fuller account of Chekhov's usage of the gun principle. In a letter to Aleksandr Semenovich Lazarev (pseudonym of A.S. Gruzinsky) from 1889, in which he gives the latter feedback on a short play, we have a version of the principle in Chekhov's own words. Then, in S.N. Shchukin's memoirs, in which he recalls the feedback Chekhov gave him on a draft of a story, we can glimpse how Chekhov might have conceived of the applicability of this dramatic principle to prose fiction. Together, these three versions from Chekhov's own account and two early interpretations of the principle suggest that we should reconceptualize the principle as metaphor rather than as formula and resituate the gun's action as a question of intention rather than of determinism.

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[15] In original: "Если Вы в первом акте повесили на стену пистолет, то в последнем он должен выстрелить. Иначе – не вешайте его."

И. Я. Гурлянд, "Из воспоминаний об А. П. Чехове," *Театр и Искусство* 28 (1904): 521.

Translation: I. Ya. Gurlyand, "Reminiscences of A.P. Chekhov," *Theater and Art* 28 (1904): 521.

Gun no. 1: Indirect Intention

Of the three versions I was able to track down of Chekhov's principle of the gun, only the abovementioned letter to Lazarev is in Chekhov's own words:

> Dear Alexander Semenovich! I received your Vaudeville and read it instantly. It is beautifully written, but its architecture is unbearable. Not theatrical at all. Judge for yourself. Dasha's first monologue is completely unnecessary, because it sticks out like a growth. It would have been fitting if what you wanted from Dasha were not an exit role and if the monologue, which promises a lot to the audience, had something to do with the content or effects of the play. You cannot put a loaded gun on the stage if no one intends to fire it. You can't promise. Let Dasha be completely silent - that is better.[16] (Translation mine.)

The so-called gun in this version of the principle proves to be a literary technology: the monologue. Chekhov advises Lazarev to remove an extensive monologue given to a minor character at the start of the play, because a monologue "promises a lot to the audience" and "you cannot put a loaded gun on the stage if no one intends to fire it. You can't promise." The principle of Chekhov's gun, as he presents it in his own words, is about the communication of a kind of indirect intention of a work's design that is independent from the writer's direct intention. According to Chekhov, if a character is given a lengthy monologue, it does not matter

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[16] From *А. П. Чехов*, "Письмо Лазареву (Грузинскому)," *Антон Чехов*, 1 July 2021, http://chehov-lit.ru/chehov/letters/1888-1889/letter-707.htm.

Translation: A. P. Chekhov, "Letter to Lazarev (Gruzinsky)," *Anton Chekhov*, 1 July 2021, http://chehov-lit.ru/chehov/letters/1888-1889/letter-707.htm.

In original: Добрейший Александр Семенович! Водевиль Ваш получил и моментально прочел. Написан он прекрасно, но архитектура его несносна. Совсем не сценично. Судите сами. Первый монолог Даши совершенно не нужен, ибо он торчит наростом. Он был бы у места, если бы Вы пожелали сделать из Даши не просто выходную роль и если бы он, монолог, много обещающий для зрителя, имел бы какое-нибудь отношение к содержанию или эффектам пьесы. Нельзя ставить на сцене заряженное ружье, если никто не имеет в виду выстрелить из него. Нельзя обещать. Пусть Даша молчит совсем — этак лучше.

if the author never intended for the character to play a major role, as viewers will interpret the character's monologue as a "promise" that the character will be important. This is also, interestingly, the only version in which the formulation of the principle specifies that the gun is loaded. Indeed, the loadedness of the gun seems to be more the point than the mere presence of the gun. The author has loaded the gun, inadvertently in Lazarev's case, and the implied intention behind that action is what an audience would recognize as promise. Authors must account for the indirect intentions of a story's design, or "architecture" as Chekhov terms it. They must be good readers of the technologies they incorporate, whether the technologies are literary (ex: the monologue) or material (ex: the gun).

Gun no. 2: Distributed Intention

Another recorded version of the principle appears in Shchukin's memoirs, though it is mediated through Shchukin's recollections:

> "I'm serious," said Chekhov. – As a rule, beginners try, as they say, to "introduce into the story" and half of them will write too much. But it is necessary to write so that the reader, without the author's explanations, from the course of the story, from the conversations of the characters, from their actions, understands what is going on. Try tearing off the first half of your story, you would only have to change the beginning of the second half slightly, and the story would be perfectly understandable. And nothing extra would be needed at all. Everything that is not directly related to the story should be mercilessly discarded. If you say in the first chapter that there is a gun hanging on the wall, in the second or third chapter it must go off. If it won't go off, it shouldn't be hanging there. Then, – he said, – you need to make the story livelier, to interrupt conversations with actions. Your [character] Ivan Ivanovich likes to talk. That is okay, but he should not be speaking for an entire page. Have him talk a little, then write: "Ivan Ivanovich got up, walked around the room, lit a cigarette, stood at the window."[17] (Translation mine.)

[17] From С. Н. Щукин, "А.П. Чехов в воспоминаниях современников. С. Н. Щукин," *Антон Павлович Чехов*, 1 July, 2021, http://chekhov.velchel.ru/index.php?cnt=10&memory=m2_10&page=4

If in Chekhov's letter to Lazarev the gun is used to elucidate indirect intention, here it illustrates something more like distributed intention. At first, it appears as though the gun stands in for the entire first half of the story, which Chekhov suggests could be cut out altogether, rather than for any particular technique. But as Shchukin continues his account, a conspicuous thread privileging action and conversation emerges. The problem with "introduce[ing] into the story," Shchukin's memory of Chekhov's advice seems to imply, is that it relies on narration, or "the author's explanations." It emphasizes communication of the direct intention of the author rather than distributing communication of intention through techniques of plot design, characters, actions, and even technological objects such as lighters or cigarettes. Chekhov does not conceive of these literary technologies as functioning independently from one another. Rather, they work together to recruit a unified intentionality that replaces the declared intentionality of narration. As Shchukin recounts it, Chekhov makes this perspective even clearer after reading a revised version of the story, which still featured too much narration for Chekhov's taste: "I crossed out a bit in two places. I have already said: do not provide authorial clarifications. Let the characters

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Translation: S.N. Shchukin, "A. P. Chekhov in the memories of his contemporaries. S.N. Shchukin," Anton Pavlovich Chekhov, 1 July 2021. http://chekhov.velchel.ru/index.php?cnt=10&memory=m2_10&page=4

In original: Я говорю серьезно, - сказал Чехов. - Обыкновенно начинающие стараются, как говорят, «вводить в рассказ» и половину напишут лишнего. А надо писать, чтобы читатель без пояснений автора, из хода рассказа, из разговоров действующих лиц, из их поступков понял, в чем дело. Попробуйте оторвать первую половину вашего рассказа, вам придется только немного изменить начало второй, и рассказ будет совершенно понятен. И вообще не надо ничего лишнего. Все, что не имеет прямого отношения к рассказу, все надо беспощадно выбрасывать. Если вы говорите в первой главе, что на стене висит ружье, во второй или третьей главе оно должно непременно выстрелить. А если не будет стрелять, не должно и висеть. Потом, - говорил он, - надо делать рассказ живее, разговоры прерывать действиями. У вас Иван Иванович любит говорить. Это ничего, но он не должен говорить сплошь по целой странице. Немного поговорил, а потом пишите: «Иван Иванович встал, прошелся по комнате, закурил, постоял у окна».

talk about all the things you describe. Consider N's recent story, – A.P. Chekhov named a famous writer – it is a wonderful story, but the author ruins it with explanations"[18] (translation mine). The intention behind the content of authorial clarifications, in other words, should be distributed to the characters. The gun principle, in this case, arguably follows the same logic as the rest of the critique. "If you *say* […] there is a gun hanging on the wall, […] it must go off," because the declared intention from narrating the presence of the gun should be distributed to the object as action.

This distributed intentionality as sketched in Shchukin's account also embeds the concept of indirect intentionality emphasized in Chekhov's letter to Lazarev, in the sense that characters, actions, and objects may not only affirm but also at times contradict the intentions avowed through narration. What makes Chekhov a better writer, according to Shchukin, is that he is better at reading multiple sources of intentionality and discerning how they can be unified: "I don't like your title. We need something else. I would title the story like this: 'The Nonsense of Ivan Ivanovich.' I confess, I did not expect such a title. The adventures of my hero did not seem silly to me. The unexpected title illuminated them from a new angle and, laughing at myself, I had to recognize that title as more appropriate than the one I had written myself"[19] (translation

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[18] From the Shchukin.

In original: В двух местах я немного вычеркнул. Я уже говорил: не делайте авторских пояснений. Пусть обо всем, о чем надо, говорят те лица, которых вы описываете. Смотрите, недавний рассказ N, - А.П-ч назвал имя известного писателя, - прекрасный рассказ, но автор портит его пояснениями.

[19] From the Shchukin.

In original: Мне не нравится ваше заглавие. Надо другое. Я назвал бы рассказ так: «Глупости Ивана Ивановича».

mine). From the contexts of Chekhov's letter to Lazarev and Shchukin's memoirs, we could say that the principle of the gun is more of a reading aid than a writing formula.

Gun no. 3: Hidden Intention

I return now to I.A. Gurlyand's version, with which we are the most familiar. The phrasing of the principle of the gun itself is quite similar to the phrasing in Shchukin: "If in the first act you have hung a pistol on the wall, then in the following one it should be fired. Otherwise don't put it there." The only notable difference is that the gun seems to be hung on an actual wall rather than said to be hanging on a wall, perhaps because Gurlyand's encounter with the principle was in the context of theatrical technique. Though the original context of this version is unknown, I would like to examine its context in Gurlyand's "Reminiscences," as one of four listed dramatic techniques by Chekhov:

> I have written down some of Chekhov's remarks about drama techniques in my notebook.
>
> "If in the first act you have hung a pistol on the wall, then in the following one it should be fired. Otherwise don't put it there."
>
> "It is shameless on the part of the author to bring onto the stage postmen, police officers, and city councilmen. Why force the actor to dress up, put on make-up, then watch for hours on end through the windows of 3a backstage?!
>
> "There is no need to be afraid of farce in drama, but reasonableness is disgusting in it. Everything is dead."
>
> "Nothing is as difficult as writing a good vaudeville. And how nice it is to write one."

Признаюсь, я не ждал такого заглавия. Похождения моего героя не казались мне глупостями. Неожиданное название осветило их с новой стороны, и, посмеявшись над собой, я должен был признать его более подходящим, чем то, которое написал сам.

I remember other things, but the above comments are the ones I had written down. (Translation mine.)[20]

The collection of quotes is fairly eclectic, but the juxtaposition of such varying principles highlights possibilities for reading the principle of the gun that are not as apparent when the principle is read in isolation. The idea that the absurdity of farce is preferable to reasonableness, for example, might seem on the surface to contradict the impetus of the gun principle. That a plot need not progress according to a commonsensical logic would seem to challenge the idea that a gun should perform its expected action. But the implied liveliness of farce contrasting the deadness ascribed to reasonableness is in line with the action privileged in the metaphor of a gun going off. Besides, a gun might go off in an unfamiliar way. Alternative logics arguably animate familiar intentions through their defamiliarization and could be a technique of gun loading, in the sense that they communicate a potential shift in expectations.

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[20] Gurlyand, 521-522.

In original:

Некоторые из замечаний Чехова о техник драматургии у меня записаны.

“Если Вы в первом акте повесили на стену пистолет, то в последнем он должен выстрелить. Иначе – не вешайте его.”

“Бессовестно со стороны автора выводить на сцену почтальонов, околоточных надзирателей, городовых. Зачем заставлять бедного актера одеваться, гримироваться, дежурить целые часы на сквозном витру 3а кулисами?!”

“В драме не надо бояться фарса, но отвратительно в ней резонерство. Все мертвить.”

“Ничего нет труднпе, как написать хороший водевил. И как гри ятно написать его.”

Помнится мне и другое, но приведенные замечания у меня записаны.

The second quotation about not bringing postmen, police officers, and city councilmen – characters with extensive costume requirements – on stage for a minor role with very little stage time suggests that the gun metaphor might also be extended to the invisible labor asked of those involved in a play's production. This particular example suggests that while designing the cast of characters and their distributed stage time, the author should consider not only the needs of the story but the demands consequently placed on the actors. It gestures at an ethics for the treatment of minor characters, an ethics recognizing that characters are embodied by real people. The costume and makeup required for such roles are a kind of loading of the gun that happens offstage, hidden from view – a raising of expectations similar to the case of the monologue, only this time for the actors rather than the audience – and the going off is perhaps a performance that is commensurate with the role's preparatory labor. This reveals yet another facet of what it might mean for authors to read for the indirect intentions of their designs. Consequences of compositional decisions affect not only what is in the story but also those involved in the story's production – not only the technology but also the technology's users. There is an implicit sacrifice involved in the author's judgment of which benefits to the story outweigh the demands on its actors and vice versa. Ultimately, the principle of the gun illustrates both a method and ethics for design.

Reading Design in Capitalism:

The ease with which design can be read is variable. As I will suggest through a reading of Chekhov's short story "A Malefactor," design reading practices became limited in scope and specialized in application as capitalism progressed. Vadim Shneyder situates Chekhov in the early days of industrial capitalism's naturalization in Russia. For Chekhov's characters, he

argues, "[t]heir great challenge is not to realize their vision, defeat their competitors, and grow rich, but to make sense of the colossal enterprises that they ostensibly control but that are not objects of their agency. The task of building these empires is always the work of another generation […]. Their descendants confront a naturalized capitalism as people bereft of any navigational tools to help them traverse this terrain."[21] "A Malefactor," about a peasant who is under questioning for taking nuts off a railroad track but cannot understand why it was wrong to take a nut to use as a weight for his fishing line, seemingly confirms this diagnosis from an infrastructural perspective. The landscape has changed because of the railway, but the peasant does not understand why he cannot continue living his inherited way of life. Indeed, this short story has generated a lot of critical interest in legal philosophy for the way in which it complicates the question of criminal intent.[22] But criminal intent is not the only form of intention at stake in the story. Indeed, the argument between the peasant and the magistrate revolves around the interpretation of technological intention. The story stages a conflict between

[21] Shneyder, 171.

[22] See Erik Iu, Solov'ev, "The Philosophical-Legal Depths of Chekhov's Story A Malefactor," *Russian Studies in Philosophy*, 50.2 (2011): 73-74.

"In common usage, *zloumyshlennik* means a person who has "a crafty intent to do evil" (Vladimir Dal'). In criminology it means a selfish, cynical offender, criminally responsible to the marrow of his bones, who is stubbornly remorseless upon conviction and tends toward recidivism. He outargued his conscience long ago (became a nihilist) and turned his intelligence into an instrument of utilitarian calculation.

We may say that criminology of the late eighteenth and early nine- teenth century used the term "malefactor" [*zloumyshlennik*] to refer to a *resolute leader* of the criminal world, past and present.

However, criminology was seriously deluded in considering the male- factor as the dominant criminal type and aligning with this type both the general concept of crime and the standards of punitive-corrective discipline."

preindustrial and industrial values through a reading of the nut's technological design: whereas the magistrate is a capitalist who accepts the railroad as ready-made, the peasant reads the elements of the railroad for the possibilities of their designs. In this respect I would argue, at least in "A Malefactor," that Chekhov's characters live not at a time when capitalism has already naturalized, but at a time of conflict between incompatible wordviews as capitalism was in the process of naturalizing.

The short story is structured almost entirely as an interrogation. As Chekhov follows his own principle and includes very little narration, relying instead on dialogue to reveal each character's worldview, I will reproduce the central dialogue at some length:

> 'What did you need it for?'
> 'What for? We make sinkers out of nuts.'
> 'Whom do you mean by "we"?'
> 'We – the people, the peasants of Klimov.'
> 'Look here, man, no playing the idiot! Talk sense, and don't lie to me about sinkers!'
> 'I never lied in my life,' muttered Denis, blinking. 'How can one possibly fish without sinkers, your honour? If you baited your hook with a shiner or a roach, do you think it would sink to the bottom without a sinker? You tell me I am lying!' laughed Denis. 'A fine bait a shiner would make, floating on the top of the water! Bass and pike and eels always take ground bait; a floating bait would only be taken by a garfish, and they won't often take it. Anyway, we haven't any garfish in our river; they like the open.'
> 'Why are you talking to me about garfish?'
> "What's that? Didn't you ask me about fishing? All the gentlemen with us fish like that. The smallest boy knows more than to fish without a sinker. Of course, there are some people who don't know anything, and they go fishing without sinkers. Fools obey no laws.'
> 'So you tell me you unscrewed this nut to use as a weight?'
> 'What else should I have unscrewed it for? To play knuckle-bones with?'
> 'But you might have made a weight out of a piece of lead or a bullet or a nail or something.'
> 'Lead does not grow on every bush; it has to be bought; and a nail wouldn't do. There is nothing so good to make a weight of as a nut. It is heavy and has a hole in it.'
> 'What a fool he is pretending to be! You act as if you were one day old or had just dropped from the clouds. Don't you see, you donkey, what the consequences of this unscrewing must be? If the watchman hadn't found you, one of the trains

might have run off the track and killed everybody, and you would have killed them!'
'God forbid, your honour! Do you think we are wicked heathen? Praise be to God, kind master, not only have we never killed anybody, we have never even thought of it! Holy Mother preserve us and have mercy upon us! How can you say such things?'
Denis smirked and winked incredulously at the magistrate. 'Huh! For how many years has the whole village been unscrewing nuts, and not an accident yet? If I were to carry a rail away, or even to put a log across the track, then, perhaps, the train might upset, but, Lord! A nut – pooh!'
'But can't you understand that the nuts fasten the rails to the ties?'
'Yes, we understand that, and so we don't unscrew them all; we always leave some; we do it carefully; we understand.'
Denis yawned and made the sign of the cross over his mouth.
'A train ran off the track not far from here last year,' said the magistrate. 'Now I know why.'
'What did you say?'
'Now, I say, I know why that train ran off the track last year.'[23]

The magistrate's questions make no sense to the peasant, and the peasant's answers make no sense to the magistrate. As the peasant describes it, the nut's function in fishing is a kind of shared knowledge in Klimov, where its usage is common practice. He provides a reading of the nut's design to illustrate how it is perfectly suited for the job of weighing down a fishing line: "There is nothing so good to make a weight of as a nut. It is heavy and has a hole in it." The magistrate, on the other hand, has not considered the nut's possible uses beyond its current use in securing the railway. He has also not considered the specific design properties of the nut, asking the peasant why, if all he needs is a weight, he could not have used "a piece of lead or a bullet or a nail or something." To the magistrate, the nut is specifically a railway nut, whether it is on the railway or not. His inability to imagine that someone might find alternative uses for the nut characterizes his capitalist perspective. He is unwilling to entertain multiple possibilities of design, though those possibilities are there to be read.

[23] Anton Chekhov, "A Malefactor," *Selected Stories*, (London: Wordsworth Classics, 2002): 31 – 32.

This is also evident in his assumption that the train going off the rails the previous year was caused by the missing nuts. He may very well be right, but his immediate certainty betrays a conventionalized understanding of the relation between railway parts. The peasant, in contrast, shows that he has considered the design of the railway. He understands the nut's purpose in the railway's design: "we don't unscrew them all; we always leave some; we do it carefully; we understand." Though I would of course not want to travel on a railway with missing nuts, the difference between the peasant's and the magistrate's interpretations of the nut illuminates what is lost in the capitalist relation to technology. The magistrate perceives the railroad as an integrated whole and cannot imagine other possible uses for its parts. But as the peasant reminds us, there are excellent uses for the nut beyond the railway. The relation between a technology's parts and wholes is not inevitable.

A LITERARY APPROACH TO TECHNOLOGICAL OBJECTS

I return now to Raymond Williams's writing on television, to cultivate a literary approach to reading technological objects. Whereas Chekhov was writing at a time when capitalism was in the process of naturalizing in Russia, Williams was confronting an already naturalized capitalism, in which singularity is entrenched as a convention of technological interpretation. The interpretive isolation of product from production in capitalist consumption (ie: commodity fetishism) facilitates a tendency to perceive technological objects as ready-made and designed for a particular purpose, isolated from other possibilities of interpretation afforded by their designs. This isolation underpins deterministic theories of technology. For example, Marshall McLuhan, to whose determinism Williams was directly responding, reads the railway as having "accelerated and enlarged the scale of previous human functions, creating totally new kinds of

cities and new kinds of work and leisure."[24] In McLuhan's method, the technological object is the starting point of analysis, or in Williams's words, "a self-acting force which creates new ways of life, or […] a self-acting force which provides new materials for new ways of life."[25] Such a method traces the effects of technology while ignoring its causes. It accepts, in other words, technology fetishism as is. Williams identifies the problem with technological determinism as "substituting for real social, political and economic intention, either the random autonomy of invention or an abstract human essence,"[26] and offers as a corrective a reading of technology that illuminates the social, political, and economic intentions informing television's emergence through attention to its design.

As I suggested earlier, Williams argues that many of the technological advancements involved in the design of television had been developed long before television itself:

> The invention of television was no single event or series of events. It depended on a complex of inventions and developments in electricity, telegraphy, photography and motion pictures, and radio. It can be said to have separated out as a specific technological objective in the period 1875-1890, and then, after a lag, to have developed as a specific technological enterprise from 1920 through to the first public television systems of the 1930s. Yet, in each of these stages it depended for parts of its realisation on inventions made with other ends primarily in view.[27]

Tracking the developmental history of television's various parts, he shows that many aspects of television technology first emerged in other technologies that predate it. His readings illuminate the multiplicity of possible uses for such parts. Indeed, television itself did not fully emerge until

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[24] Marshall McLuhan, *Understanding media: The extensions of man*, (Cambridge: MIT University Press, 1994): 8.

[25] Williams, 14.

[26] Williams 131.

[27] Williams, 14-15.

social conditions were ripe for its reception. An evocative example of this indeterminacy is in Williams' discussion of the relatively poor visual definition of television as a medium compared to cinema. "Higher definition systems, and color," he explains, "have still only brought the domestic television set, as a machine, to the standard of a very inferior kind of cinema."[28] But, the benefits of a larger variety of programming, including "music, news, entertainment, sport,"[29] as well as the comfort of watching in one's own home, outweighed the costs of lower quality resolution. We can discern in television's success a consensus among viewers about the general desirability of this particular compromise. There is a shared assent, in other words, to the implicit sacrifice of visual quality. Technological design in Williams's reading is therefore not solely the purview of producers but is also shaped[30] by the attitudes of its users.

This is most apparent in his thinking on the forms of intention in technological production and usage:

> But all technologies have been developed and improved to help with known human practices or with foreseen and desired practices. This element of intention

[28] Williams, 28.

[29] Williams, 29.

[30] Williams is careful to specify in his argument against technological determinism that he also does not mean to suggest that technology is determined:

"Determination is a real social process, but never (as in some theological and some Marxist versions) as a wholly controlling, wholly predicting set of causes. On the contrary, the reality of determination is the setting of limits and the exertion of pressures, within which variable social practices are profoundly affected but never necessarily controlled. We have to think of determination not as a single force, or a single abstraction of forces, but as a process in which real determining factors - the distribution of power or of capital, social and physical inheritance, relations of scale and size between groups - set limits and exert pressures, but neither wholly control nor wholly predict the outcome of complex activity within or at these limits, and under or against these pressures."

Williams, 130.

> is fundamental, but it is not exclusive. Original intention corresponds with the known or desired practices of a particular social group, and the pace and scale of development will be radically affected by that group's specific intentions and its relative strength. Yet at many subsequent stages other social groups, sometimes with other intentions or at least with different scales of priority, will adopt and develop the technology, often with different purposes and effects. Further, there will be in many cases unforeseen uses and unforeseen effects which are again real qualifications of the original intention. Thus an explosive may be developed at the command or by the investment of a ruling class, or by the investment or for the profit of an industrial enterprise, yet come to be used also by a revolutionary group against that ruling class, or by criminals against the industrialist's property.[31]

What he calls original intention is what we most intuitively associate with intentionality – the avowed intentions of a technology's makers and users. But a technology accumulates other intentions over time, through design adjustments and new forms of usage according to the values of other designers and users. And unexpected consequences are an effect rather than a contradiction of intentions. When a rebel group uses an explosive made for the ruling class, it is because the explosive was made to explode. Technologies embed the priorities of the social groups that make and use them, but the unintended consequences of their priorities can exceed the group's declared intentions.

Design is my word – not Williams's. But his interest in the social, political, and economic factors that contribute to a new technology's emergence leads him to consider the relation between television's parts and its whole, as well as other possible uses for its parts. Attention to television's design is implicit in this kind of reading. As I use the term, design offers an alternative framework of interpretation to the determinism debate. Whereas the question of determinism and the ultimate stakes for Williams involve the tracing of causal relations between societal and technological change on a large historical scale, design provides insights into a

[31] Williams, 129 – 130.

technology's makers and users. For Williams, the success of television despite its low resolution is an example of how social factors shape technology, but it also tells us about how we collectively evaluate the costs and benefits of television. While Williams's stated objective is to show how technology is shaped by our values, his method hints at how we might conversely read technology for a better understanding of our values.

§

The chapters of this dissertation are organized according to the three variations of Chekhov's principle of the gun – that is, three facets of technological intention in fiction. Each chapter explores an aspect of technological design and intention through a literary category. The first chapter, taking the knife-gun in Emily Brontë's *Wuthering Heights* as its case study, focuses on the designer end of technology and how a designer's embedded intentions inform the convention of technological accidents as plot devices. The second turns to the bomb scene in Joseph Conrad's *The Secret Agent*, to address the user end of technology and how a sense of shared assent to the usage of a technology implies a utopia. The third uncovers the legacy of an invisible gun in an early draft of Ralph Ellison's *Invisible Man*, as an allegory for the invisible labor of operators of technology, whose invisibility is a corollary of the aesthetic of the technologies they operate. Together, these guns assemble to generate an account of the relations between people that underlie technological objects.

"Gun No.1: Design, Plot, Narrative Accident" establishes what it looks like to read for design. Working with writings of the *Bauhaus*, I cultivate an awareness of design that is rooted in what I term compounded intentionality. *Bauhaus* workshops encouraged students to experiment with new and unexpected ways of using materials. The purpose of such

experimentation was not so much to discover better ways of working with their material, though students often did, as to become fully aware of why conventional usage has become conventional. An object's design is a result of numerous intentional decisions. I then use this understanding of design to examine the enigmatic compound knife-pistol in Emily Brontë's *Wuthering Heights* (1847). This weapon appears twice in the novel. The first time, its owner Hindley shows it off to Isabella, who describes it as "a curiously-constructed pistol, having a double-edged spring knife attached to the barrel."[3] The second time, Hindley is brandishing it around and Heathcliff attempts to disarm him. In the scuffle, the gun goes off without hitting anyone, but the knife closes onto Hindley's wrist, injuring its user. Examining these two scenes, my reading considers how Brontë narratively sets up for the knife-pistol's surprising action, how she develops both the knife's and the gun's design in such a way that their action can be made sense of. I argue that this knife-pistol, which has been dismissed by critics as nothing more than a curiosity, is actually designed to move the novel's plot toward its denouement. I show, in other words, how reading for the compounded intentionality of design can offer a unique and crucial purchase on narrative action.

"Gun No. 2: Worldview, Utopia, Implicit Sacrifice" turns to users of technology and the far more common scenes of technologies that are considered to work. Whereas a technological object's compounded intentionality can be read directly from its design, our interpretation of whether a technology works is a question of shared intention. Our worldview determines the actions that are included in our understanding of whether a certain technology works properly and the actions that are excluded. I look to utopian fiction to develop an understanding of how consensus is built around technological objects. Utopia, I argue, is the genre of technology because technologies imply ideal worlds. I illustrate this concept in a reading of the river locks in

William Morris's *News from Nowhere*. The locks are considered perfect, not because they never break, but because the inhabitants of Morris's utopia collectively assent to the manner of breakage and repair. That consensus around how a technology works also includes judgment of which forms of malfunction are acceptable, however, means that there is also implicit agreement around what can be sacrificed. Those who lie outside the utopia's ideological borders are left out of its technology's design considerations. In the second half of the chapter, I expand on the consequence of implicit sacrifice in a reading of the Greenwich bombing event in Joseph Conrad's *The Secret Agent* that examines the collective responsibility for the accidental suicide of neurodivergent character Stevie. I then turn to the Gatling gun, a weapon that its creator purportedly believed would reduce violence but instead amplified it, as a historical example of the negotiation of implicit sacrifice. Ultimately, this chapter is about how our worldviews inform the technologies we design, which are in turn indicative of the worlds we want.

"Gun No.3: Concealment, Elegance, Invisible Workers" focuses on operators of technology and develops an account of elegance as the aesthetic of modern technology. In this context, I argue that the category of elegance necessitates a class of workers who are able to read concealed design. In the first half of the chapter, I examine elegance using a variety of texts, ranging from science to interior design to literature, in order to build an understanding of elegance as an aesthetic of concealment. The perceived simplicity of an elegant theory, object, or style is a kind of illegibility – they are, to the uninitiated, largely irreplicable and indecipherable. In the second half, I turn to a reading of skilled workers in Ralph Ellison's *Invisible Man*, who are able to read the concealed design of technology, but who as a corollary occupy concealed positions and are, in a sense, themselves invisible. Through this reading, I suggest that our

aesthetic preferences may expose a preference for a structure of labor organization that degrades its workers.

The coda, "Gun No. 3.1: Action Films and a New Elegance," turns to contemporary action films and meditates on the forms of elegance today. I suggest that technological elegance, from James Bond to Marvel, has taken on a new appearance in the last few decades – one that now obscures the design's concealment of labor and poses additional challenges for reading design.

CHAPTER 1

GUN NO. 1: DESIGN, PLOT, NARRATIVE ACCIDENT

"Waffen töten keine Menschen," offers Martin Rauch in the first episode of *Deutschland 86* (2018), before his interlocutor enthusiastically cuts in to finish the sentence "Menschen töten Menschen."[1] American viewers would immediately recognize in this scene's subtitles a familiar National Rifle Association adage: "Guns don't kill people – people kill people." In its first season, the Cold War spy series then titled *Deutschland 83* (2015) gained a cult following in the United States though it did not receive much attention back home in Germany. When its second season was released three years later, it seemed to be speaking more directly to American viewers. If it feels surprising that a German Cold War series would use the NRA line, that would be because it is surprising. As its domestic critics have noted, the show is unlike most others of the historical spy genre in that it is not particularly invested in realism.[2] Though the show remains meticulous in its historical detail, its project is instead similar to one we might more frequently associate with the defamiliarizing aspect of science fiction. Indeed, the episode's use of "guns don't kill people – people kill people" produces not a reality effect, but rather an estrangement effect, one that stages the question of gun control in an alternative framework.

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[1] *Deutschland 86*, season 2, episode 1, "Tar Baby," directed by Florian Cossen, written by Anna Winger, featuring Jonas Nay, Maria Schrader, and Florence Kasumba, aired October 19, 2018, UFA Fiction, 2019, Hulu.

[2] Katharina Riehl, "Zum Teufel mit der historischen Korrektheit," *Süddeutsche Zeitung*, Nov. 25, 2015, https://www.sueddeutsche.de/medien/rtl-serie-deutschland-83-zum-teufel-mit-der-historischen-korrektheit-1.2753556.

The estrangement effect of the scene is multifold. Martin is a reluctant Stasi officer undercover as a West German arms dealer, who has been instructed by his financially struggling government to broker a lucrative arms deal in South Africa, even though such a deal would effectively help East Germany's enemies fight its allies. His interlocutor is a West German commissioner whose signature is needed for the deal. The context in which the two characters split the NRA line is far from that of the Second Amendment. The legislative backdrop to Martin's arms deal is United Nations Security Council Resolution 591 (1986), which extended the arms embargo against apartheid South Africa beyond weapons to include any parts that may be appropriated for the purpose of weapons manufacturing. Martin attempts to bond with his target over how bad the UN arms embargo against South Africa is, for both private business and international trade, and the commissioner's enthusiastic agreement with "guns don't kill people – people kill people" marks the successful culmination of his efforts. With the slogan dissociated from the question of gun ownership rights, however, the show draws attention to the warrants of the sentence itself – a sentence that seems to permeate nearly all discussions of gun violence in the United States, a sentence whose logic dictates the paradigm for how we think about gun action and, to a large extent, technological action in general.

To assert that "guns don't kill people – people kill people" while discussing Resolution 591 is almost willfully off the mark. The people-guns dynamic as set up by that sentence presumes that people and guns exist independently of one another prior to the moment of action. This is an assumption the UN explicitly rejects in its inclusion of parts in the arms embargo. Arms, as conceived by this resolution, are not ready-made objects, but rather a conceptual classification of harm production. The question is not whether one can kill with a particular item, but rather whether an item can contribute to killing. On the surface, "guns don't kill people –

people kill people" claims that responsibility for action must be ascribed to intention to act. And, as the reasoning goes, humans can intend to kill while guns cannot. But, this line of argumentation only holds if we ignore the fact that guns are made by people who intend for them to kill. In other words, guns are *designed* to kill or anyway to harm. This obvious point matters, because it reveals that an intention to do serious bodily harm is embedded in the gun itself. Indeed, Resolution 591 conceives of design as a form of intention. It addresses parts of specific technologies that states "have reason to believe […] have a military *capacity* and are *intended* for military purposes"[3] (italics mine). Whether a part is included in the embargo has to do not only with the intentions of the buyer but also the intentions built into/within the part itself. An object may contribute to a weapon's design, even if it is not in itself harmful. Resolution 591 is, one could say, a mandate to read for design.

Deutschland 86 is a direct response to that mandate. With Resolution 591 prominently featured in its plot and its narrative centered around the arms deal, the show is a rumination on the potential conflicts between technological design and human intention. Martin brokers the deal as instructed, then tries to sabotage it once he realizes that he has armed people who intend to kill the children he taught at an orphanage in Angola. As a reflection on technological intention, the show essentially plays out the supersession of one paradigm, "guns don't kill people," by another, "guns are designed to kill people." It is also, in a more general sense, a self-reflexive meditation on what "literary"—that is, narrative and dramatic – works can do for understanding design. Reading design, in other words, requires exactly that: reading. If

[3] *On the Arms Embargo Against South Africa*, SC Res 591, UNSCOR, 41st year, UN Doc S/RES/591 (28 November 1986).

Resolution 591 is about reading for design in an engineering context, *Deutschland 86* is about reading for it in a narrative context.

There is of course an established history of thinking about narrative and dramatic works – literature in an expanded sense – in relation to design. Peter Brooks, for example, conceives of plot as "the design and intention of narrative, what shapes a story and gives it a certain direction or intent of meaning."[4] The absence of technology from such scholarship, however, is a telling one. Brooks himself is more concerned with modes of plot movement than the objects or events that move it. For my purposes here, a better example of design in literature would be Chekhov's famous dictum about guns and the design of narrative expectation: "If you say in the first chapter that there is a rifle hanging on the wall, in the second or third chapter it absolutely must go off. If it's not going to be fired, it shouldn't be hanging there."[5] Taken literally, Chekhov is saying that literary design should account for the gun's design. This is not to say that the author is inconsequential – quite the opposite – but that the author is a designer of narrative, not technological objects. Writers must be good readers of technology in order to design a compelling story. Through a case study of guns in fiction, this chapter examines the dynamics of technological and literary design. It is, ultimately, about how literature theorizes technology and practices design. But first, let us consider what it means to situate design at the center of our understanding of technology.

[4] Peter Brooks, *Reading for the Plot: Design and Intention in Narrative* (Cambridge: Harvard University Press, 1992), xi.

[5] Lisa Selvidge, *Writing Fiction Workbook* (London: Lulu Enterprises, UK ltd, 2007), 78.

Why Design?

Technology has been an area of substantial interest in literary criticism since the mid 20th century. Underpinning diverse fields ranging from book history to posthumanism, questions concerning the relation of technology to culture and society have contributed greatly to the way we practice criticism now. By the end of the century, however, analytic philosophers began charging literary modes of engagement with an impoverished understanding of technology. Grouped together with other humanities and social sciences approaches into what Carl Mitcham termed the "humanities philosophy of technology,"[6] literary criticism was said to have prioritized a study of technology's cultural and social effects at the cost of studying technology itself. What is technology *per se*? How does it come to be? These are the kinds of questions analytic philosophers sought to investigate instead.[7] It is a significant oversight, they argue, that technology has not been studied in the analytic tradition alongside such fields as the philosophies of science, action, and decision-making (how/why we know things and how/why we do things). Of course, this was more a criticism directed at their own field – a call to arms, one might say – than a genuine effort to discredit work done in the humanities and social sciences. Analytic philosophers thought existing approaches were not so much incorrect as insufficient. They are right, in this respect, but their suggested remedies continue to reinforce (even as they supplement) unquestioned assumptions about how we approach technology.

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[6] Carl Mitcham, *Thinking Through Technology: The Path between Engineering and Philosophy* (Chicago: University of Chicago Press, 1994), 39.

[7] Henryk Skolimowski, "The Structure of Thinking in Technology," *Technology and Culture*, no. 7 (1966): 371 – 383; Jarvie, I.C, "The Social Character of Technological Problems: Comments on Skolimowski's Paper," *Technology and Culture*, no. 7 (1966): 384 – 390.

If humanities and social sciences work on technology is primarily concerned with its effects and analytic philosophy is focused on its origins, then our understanding of technology will be fragmented into two stages – into an after, when a technological object already is, and a before, when it is not yet. In other words, such a critical framework separates production (in an expanded sense) and product, cultivating an artificial sense of discontinuity between maker and user intention. It is, arguably, what makes a specious formulation such as "guns don't kill people; people kill people" possible. This is why I want to put forth design as a rubric for an alternative framework. It is a term that itself runs the gamut from production to product. Let us consider, for example, that as a verb, "to design" refers to both making plans or intentions (a weapon designed to harm) as well as drawing plans or blueprints (to design a gun), and that as a noun, a design might range from a sketch or blueprint (designs for a gun), to a property of a designed object (a gun with a clumsy design), or even to a sense of purpose attributed to such an object (a gun's design).[8] Design, it seems, can be situated throughout different stages of production and product. It is not, however, tied to a before and after logic. Instead, it appears to be a conceptual unification of various perspectives on the relation between technology and intentionality.

Indeed, design directs us toward the *techne* of technology – the craft or how-to – which not only informs both production and product stages but addresses both maker (how to make) and user (how to use) intention. In turning to craft to enhance our understanding of technology, I do not mean to suggest a so-called return to earlier methods of making. Rather, it is to reconsider what craft is, in a time of industry. For this, I turn to the *Bauhaus*. Though active as a school for only 14 years (1919-1933), the *Bauhaus* approach to design has been widely influential. Not

[8] *Oxford English Dictionary,* 2nd ed. (Oxford: Oxford University Press, 2004), s.v. "Design."

least of its aims was to address the lack of designers in industry. As the school's founder Walter Gropius detailed in "The Theory and Organization of the Bauhaus" (1923):

> A demand arose for products outwardly attractive as well as technically and economically acceptable. The technicians could not satisfy it. So manufacturers started to buy so-called "artistic designs." This was an ineffective substitute, for the artist was too removed from the world about him and too little schooled in technique and handicraft to adjust his conceptions of form to the practical processes of production. At the same time, the merchants and technicians lacked the insight to realize that appearance, efficiency and expense could be simultaneously controlled only by planning and producing the industrial object with the careful cooperation of the artist responsible for its design. Since there was a dearth of artists adequately trained for such work, it was logical to establish the following basic requirements for the future training of all gifted individuals: a thorough practical, manual training in workshops actively engaged in production, coupled with sound theoretical instruction in the laws of design (24).[9]

Gropius describes a division within production, in which artists and technicians are too separate for design plans to be effectively executed. The *Bauhaus* project, as he saw it, was to bridge this

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[9] Walter Gropius, "The Theory and Organization of the Bauhaus," *Bauhaus 1919-1928*, ed. Herbert Bayer, Ise Gropius, Walter Gropius (New York: MOMA, 1938): 24.

Translation of Walter Gropius, *Idee und Aufbau des staatlichen Bauhauses* (München: Bauhausverlag G.M.B.H., 1923): 2.

Neben den bisherigen Forderungen nach technischer und wirtschaftlicher Vollkommenheit erwachte ein Verlangen nach der Schönheit der äußeren Form der Erzeugnisse, die der Techniker der Praxis ihnen nicht zu geben vermochte. Man kaufte den »künstlerischen Entwurf«. Aber diese papierne Hilfe blieb ein untaugliches Mittel, denn der Künstler war zu weltfremd, zu wenig technisch und werklich geschult, um seine Formgedanken mit dem praktischen Werkvorgang der Ausführung in Einklang zu bringen, während es dem Kaufmann und Techniker an vorausschauender Einsicht dafür fehlte, daß die erstrebte Einheit von Form, Technik und Ökonomie aller Erzeugnisse nur in sorgfältig vorbereiteter Gemeinschaftsarbeit mit dem für die Form verantwortlichen Künstler am Werkobjekt selbst und bei seiner Herstellung erreicht werden kann. Da die richtig geschulten künstlerischen Kräfte fehlen, die die mangelnde Einheit im Wirtschaftskörper zu vollziehen vermöchten, folgt daraus als Grundforderung für die künftige Bildung aller bildnerisch Begabten: Gründliche praktische Werkarbeit in produktiven Werkstätten eng verbunden mit einer exakten Lehre der Gestaltungs elemente und ihrer Aufbaugesetze.

divide, to train artists capable of working together with industry. And the foundation of this training was in *Handwerk* – that is, craft.

The *Bauhaus* curriculum[10] consisted of three years of craft training in forms and colors, after which students were encouraged to seek engineering training elsewhere, in addition to their training in *Bauhaus* workshops, as they began collaborating in building. The emphasis on learning both craft and engineering speaks to Gropius's desire to think of the production process more continuously, to develop what he calls "a new and powerful working correlation of all the processes of creation."[11] As he saw it, the benefit with this type of curriculum was that "[the student] keeps in touch with the entire process of production from start to finish, whereas the factory worker never gets beyond the knowledge of one phase of the process."[12] Though Gropius still, in these moments, conceives of what he calls crafts as separate from industry, he thinks of the division as a temporary historical state. "Craftsmanship and industry are today steadily

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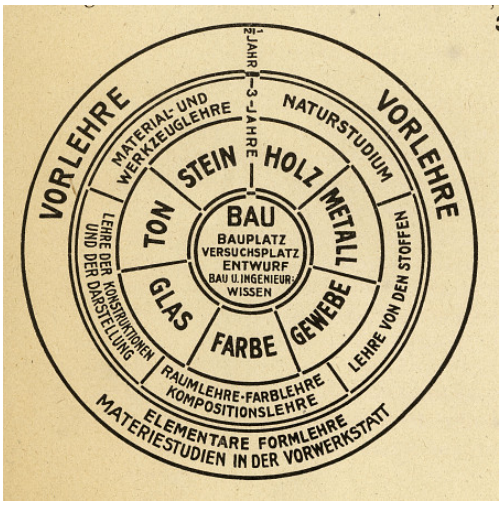

Figure 1.1: Bauhaus Curriculum
Gropius, *Idee und Aufbau*, 4.

11 Gropius, "Theory and Organization," 30.

12 Gropius, 27.

approaching one another," he explains, "and are destined eventually to merge into one."[13] In this sense, the *Bauhaus* curriculum may be understood to train students for a coming *techne* of the near future.

Such a forward-looking impulse is not confined to the curriculum. Though most *Bauhaus* writings tend to focus on the production process, they also reveal a particular orientation toward the idea of what happens after production. *Bauhaus* products are, like its training, for a future that is not yet. In order to situate the implications of this orientation, we need to consider what Gropius cites as the reason for the "loss of creative unity" that the *Bauhaus* seeks to repair:

> The principal difference between factory production and handicraft lies not in the machine's superiority over more primitive tools as an instrument of technical precision, but in the fact that in the factory each operation involved in manufacturing a product is performed by a different man, whereas the craft product is made entirely by one person. But if industry is to develop, the use of machinery and the division of labor must be maintained. Neither factor is in itself responsible for the loss of creative unity which has resulted from technological development. The root of the evil exists rather in the much too materialistic attitudes of our times and in the loss of contact between individual and community.[14] [15]

At first glance, the concluding statement may seem logically incorrect. If only a single person is involved in making a craft product and multiple people are involved in manufacturing an industrial product, wouldn't industrial work be more communal than craft work? But community, in this context, refers not so much to an association of people as to a sense of

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[13] Gropius, 27.

[14] Gropius, 27.

[15] Gropius, *Idee und Aufbau*, 7.
The final sentence of the passage in the original German is "[…] in der mangelnden Beziehung des Einzelnen zum Ganzen."

wholeness.[16] Or, put in terms of logic, individual is to community as part is to whole. The "loss of contact between individual and community" is a fragmentation, which is echoed in a fractured production process. How this loss helps us understand Gropius's notion of *Bauhaus* products as being for the future becomes clear when he discusses the challenges of building: "Since building is a collective work, its success depends not on the individual, but on communal interest. The fully purposeful building arises only from the will of an entire nation. This will to build is not yet alive today" (translation mine).[17] In other words, even once a building has been built, it cannot serve the purpose intended by those involved in its production, if those who interact with it as product do not share the same intentions. Gropius was almost eerily prescient on this point, as a number of former *Bauhaus* students who were sent to concentration camps a few years later ended up designing camp buildings that, unbeknownst to them at the time of designing, would be used for gas chambers.

Reading for design as a critical method in the study of technology is more than an intellectual exercise. It is not merely an alternative to analytic philosophy or the so-called "humanities philosophy of technology." It is an ethical imperative. For while work that has come out of these fields has made valuable and crucial contributions to our understanding of technology, it is limited in its ability to think about responsibility. In philosophy, technological

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[16] The MOMA exhibition catalogue for *Bauhaus 1919-1928,* which features a collection of Bauhaus writings, translates "Einzelnen" and "Ganzen" as "individual" and "community," but in a more literal sense they are perhaps better translated as "individual"/"particular" and "whole"/"entire."

[17] Gropius, *Idee und Aufbau*, 9.

Translation of: "Da Bauen kollektive Arbeit ist, hängt sein Gedeihen nicht vom einzelnen, sondern vom Interesse der Gesamtheit ab. Der reine zweckentbundene Bau entsteht nur aus dem Willen eines ganzen Volkes. Dieser Bauwillen ist heute nicht lebendig."

responsibility is largely conceived with respect to makers/engineers and is driven by the question of legal liability. Within this framework, technology has the "problem of many hands,"[18] in which it may not be possible to attribute responsibility simply because of the sheer number of people involved in the production process. It would not matter even if harmful effects are intentional, unless fault can be traced back to distinct individuals. In the "humanities philosophy of technology," we could look to someone like Bruno Latour, who has explicitly addressed "guns don't kill people – people kill people." For Latour, it is neither guns nor people who kill people, but rather a human-gun/gun-human entity that does, as the gun's action is a result of the human and gun's interaction. As he puts it: "You are different with a gun in your hand; the gun is different with you holding it. You are another subject because you hold the gun; the gun is another object because it has entered into a relationship with you."[19] It is an approach to which literary scholars of posthumanism would be sympathetic, as its treatment of human and machine body is in some sense continuous, or at least the two are treated as mutually influential. Despite the moral stakes of the example, however, Latour's approach does not significantly account for responsibility. Actor-Network-Theory is more descriptive than explanatory. It illustrates interactions between entities that are assumed to pre-exist their encounter. Put differently, its range of causality is limited to the moment of interaction. In Latour's scheme, a gun could be

[18] This was most likely coined in 1980, by D.F. Thompson in an article on the ethics of government. As he explained, "because many different officials contribute in many ways to decisions and policies of government, it is difficult even in principle to identify who is morally responsible for political outcomes."

D.F. Thompson, "Moral responsibility and public officials: The problem of many hands," *American Political Science Review* 74, no. 4 (1980): 905.

[19] Bruno Latour, *Pandora's hope: essays on the reality of science studies* (Cambridge: Harvard University Press, 1999): 179.

faulty and the way to understand the interaction would be the same as if it were not. Either way, a human and a gun came together to produce an action.

These approaches are not necessarily wrong, but they do not quite play out the implications of their own reasoning. What both are getting at, but ultimately back away from, is the Bauhausian concept of community inherent in technological objects. There are indeed many hands responsible for a technological object's action. From artists to engineers to distributors to users, every hand, literal or metaphorical, that a gun passes through contributes to the actions it performs. When a Latourian actor interacts with a gun, the actor is interacting with all the hands that came before. Built into a gun's design is a cumulation of intentions both direct and indirect.

What I mean by direct and indirect intention is that a technological object's design comprises not only of the aspects intended by its producers but also of the unintended byproducts of these aspects. For example, a matchlock gun uses a matchlock mechanism[20] to lower the match into the flash pan to ignite the priming powder. The firing of the gun is an intended effect. But because the matchlock mechanism requires that the match remain lit until the gun is fired,

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Figure 1.2: Matchlock Musket
"Matchlock musket (toradar) (1800-1899)," accessed February 1, 2020, https://collections.royalarmouries.org/object/rac-object-1820.html.

matchlock guns have a high possibility of misfiring in damp or windy environments that could put out the flame. The misfire is indirectly intended, as its possibility is a necessary consequence of the intended action of this particular design. In this sense, there are no accidents. An action may seem to be unintended or accidental from a user's perspective, but any technological object's action, however unlikely, is a possibility implicit in its design. Technological responsibility is not limited to a particular undesirable action or to a particular individual's interaction. It is an ongoing practice of reading for and assessing possibilities. In this sense, I am thinking of responsibility not only in terms of liability, which is about attributing blame after the fact. I am also thinking through a forward-looking lens, in which it is a collective moral obligation to read for potential action.

In that vein, *Bauhaus* workshops placed considerable emphasis on experiment. The preliminary course taught by Josef Albers trained students to explore the properties of materials by experimenting with different ways of using them. As an example, Albers describes working with paper:

> [P]aper, in handicraft and industry, is generally used lying flat; the edge is rarely utilized. For this reason we try paper standing upright, or even as a building material; we reinforce it by complicated folding; we use both sides; we emphasize the edge. Paper is usually pasted: instead of pasting it we try to tie it, to pin it, to sew it, to rivet it. In other words, we fasten it in a multitude of different ways. At the same time we learn by experience its properties of flexibility and rigidity, and its potentialities in tension and compression. Then, finally, after having tried all other methods of fastening we may, of course, paste it.[21]

The point in this preliminary course was not so much to find unconventional uses for materials (though new usages for material were frequently discovered in *Bauhaus* workshops) as to learn to make decisions about material usage in conscious and informed ways – to not take

[21] Josef Albers, "Concerning Fundamental Design," *Bauhaus 1919-1928*, ed. Herbert Bayer, Ise Gropius, Walter Gropius (New York: MOMA, 1938): 116.

conventional usage for granted. The paper example may seem to be a simple enough exercise, but when the same experimental ethos is carried into the development of more complex objects, by which I mean objects consisting of more parts, we can see the importance of recognizing an object's design as being composed of compounded intentions. If each decision is based on as thorough a weighing of possibilities as the paper pasting, then the possible configurations rise exponentially. A simple object of ten parts could easily have, mathematically speaking, over a billion possible variations. Of course, the vast majority would not be industrially viable. (We can probably discard, for example, anything with pinned paper.) But the point is that each decision is a crucial contribution to an object's design. Add to these decisions any accompanying indirect intentions, and we have inherent within an object a complex aggregate of intentionality.

Though such a description of design may resemble an abstract theoretical exercise, there are interesting historical cases of familiar technologies that have been slightly altered to become something entirely different. A particularly intriguing example is inventor Étienne-Jules Marey's photographic gun.[22] It was, to put it simply, almost exactly what its name suggests: a gun that shoots photographs rather than people or other animals. His interest in developing such a technology arose out of his work in chronophotography. In order to study bird movement, he wanted to be able to take ten to twelve photographs per second. The invention both looks like

[22] Étienne-Jules Marey, "Le Fusil Photographique," *La Nature: Revue des sciences* 18, no 464 (22 avril 1882): 326 – 330.

and borrows from the mechanisms of a revolving rifle.[23] The barrel is blocked by a photographic objective (ie: a lens), but it remains sized and shaped like a rifle. When the trigger is pulled, a

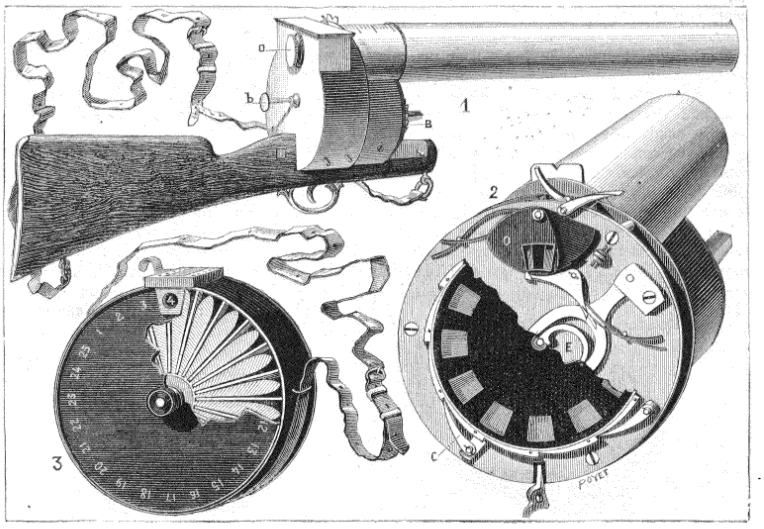

Fig. 2. Mécanisme du fusil photographique.

23 1 Vue d'ensemble de l'appareil. — 2. Vue de l'obturateur et du disque à fenêtre. — 7. Boîte contenant vingt-cinq plaques sensibles.

Figure 1.3: Photographic Gun Mechanism
Marey, 329.

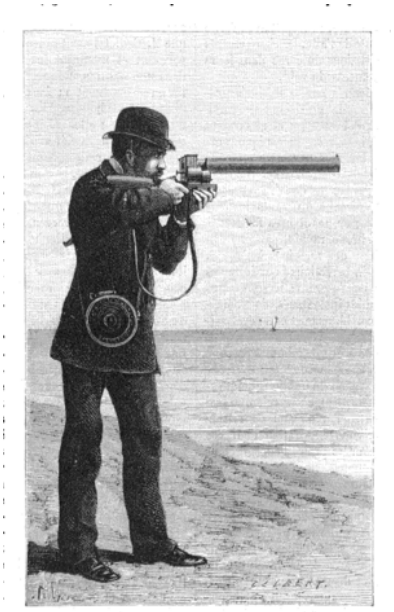

Fig. 1. Mode d'emploi du fusil photographique.

Figure 1.4: Shooting a Photographic Gun
Marey, 328.

disk revolves to let light in rather than bullets out, twelve times a second.[24] How do we make sense of a gun and a camera having such similar form? As a manifestation of latent possibility in gun design, Marey's camera hints at a wealth of unrealized potentials. While camera technologies developed quickly and the rifle shape did not persist, the photographic gun worked fairly well for a prototype.[25] Just a few additions and adjustments turned the revolving rifle, an existing technology, into something that, in terms of purpose, was entirely different. The photographic gun is an example that makes the compounded intention of design palpable.

[24] "Quand on presse la détente du fusil, le rouage se met en marche et imprime aux différentes pièces de l'instrument le mouvement nécessaire. Un axe central, qui fait douze tours par seconde, commande toutes les pièces de l'appareil. C'est d'abord un disque de métal opaque et percé d'une étroite fenêtre. Ce disque forme obturateur et ne laisse pénétrer la lumière émanant de l'objectif que douze fois par seconde, et chaque fois pendant 1/720 de seconde."

Marey, 327 – 328.

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Fig. 3. Photographie d'une mouette pendant son vol. Reproduction par l'héliogravure d'un cliché obtenu à l'aide du fusil photographique.

Fig. 4. Agrandissement par l'héliogravure d'une image obtenue à l'aide du fusil photographique.
Début de l'abaissement de l'aile.

Fig. 5. Agrandissement par l'héliogravure d'une autre image obtenue à l'aide du fusil photographique.
Fin de l'abaissement de l'aile.

Figure 1.5: Photographic Gun Photographs
Marey, 329-330.

Technological Design in Literary Spaces: Marx and Industrial Mysticism

Let us, at this point, take a slight step back. If design is, as I have argued, a constructive alternative to thinking about technology in terms of production and product phases, why has it not had more consequence? Why, in other words, has the production/product framework become so entrenched in technology criticism? The answer is, quite simply, that this framework more closely resembles our typical experiences with technology. Karl Marx's writings on alienation and commodity fetishism are early meditations on this separation. Those involved in the production process have no ownership of the products of their labor, while consumers tend to interact with products without a thought toward those involved in making them. We rarely experience any continuity between production and product. A better question, then, is if production/product became the paradigm for thinking about technology in capitalism, what happened to design? And here again, it is to Marx that we must look.

The magic table passage in *Das Kapital* (1867), in which Marx narrates the process of wood becoming table commodity, has been frequently taken up in literary studies of materiality. But it is as much about design as it is about materiality. This oversight may, at least partially, be explained by a slight but crucial irregularity in the popular Ben Fowkes translation. Fowkes translates the passage as follows:

> The form of wood, for instance, is altered if a table is made out of it. Nevertheless the table continues to be wood, an ordinary, sensuous thing. But as soon as it emerges as a commodity, it changes into a thing which transcends sensuousness. It not only stands with its feet on the ground, but in relation to all other

> commodities, it stands on its head, and evolves out of its wooden brain grotesque ideas, far more wonderful than if it were to begin dancing of its own free will.[26] [27]

The change from wood to table in the German is characterized by the verb "verändern," while the change from ordinary table to commodity is characterized by the verb "verwandeln." "Verändern" can mean "to alter" or "to change," and "verwandeln" means "to transform" or "to convert." Though each verb carries multiple meanings, the progression from "verändern" to "verwandeln" implies a general sense of intensification. To say wood is altered to make a table is to say that we started with wood and ended up with wood of a different shape. To say that a table is transformed into a commodity is to say that the table has become something else. Fowkes chooses "alter" for the transition from wood to table, but curiously chooses "change" for the transition from ordinary table to commodity. There is no obvious reason for this decision, as "verwandeln" is a particular kind of change. "Change" is a much more general characterization that fails to preserve both the symmetry and the progression of Marx's construction. Fowkes sidesteps Marx's obviously mystical choice of language.

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[26] Karl Marx, *Capital: A Critique of Political Economy Volume One*, trans. Ben Fowkes (London: Penguin Books in association with New Left Review, 1990), 163-164.

[27] In the original German:

Die Form des Holzes z. B. wird verändert, wenn man aus ihm einen Tisch macht. Nichtsdestoweniger bleibt der Tisch Holz, ein ordinäres sinnliches Ding. Aber sobald er als Ware auftritt, verwandelt er sich in ein sinnlich übersinnliches Ding. Er steht nicht nur mit seinen Füßen auf dem Boden, sondern er stellt sich allen andren Waren gegenüber auf den Kopf und entwickelt aus seinem Holzkopf Grillen, viel wunderlicher, als wenn er aus freien Stücken zu tanzen begänne.

Karl Marx, *Das Kapital. Kritik der politischen Ökonomie,* (Stuttgart: Alfred Kröner Verlag, 2011): 52 – 53.

It is especially curious, then, that he makes a decision later in the passage that enhances its mysticism. He describes the commodity as "a thing which transcends sensuousness." According to Fowkes's interpretation, the commodity is mystical, while the process by which it becomes a commodity is not. But in the German, Marx wrote that the commodity is "ein sinnlich übersinnliches Ding." In a strictly literal translation, it would mean "a sensory suprasensory thing." That is to say, it is a suprasensory thing characterized as sensory. Describing the commodity as "a thing which transcends sensuousness" conceals its inherently contradictory character. Moreover, it completely glosses over the figurative meaning of the phrase. "Sinnlich" means "sensory," "sensuous," or "sensual," but also plays on "Sinn," which means "sense" as well as "meaning." In other words, both "sinnlich" and "übersinnlich" play on "to sense" and "to make sense." "Ein sinnlich übersinnliches Ding" therefore has an additional nuance as something we cannot quite make sense of.

These particular translation details matter when it comes to tracking what happens to design. We can see from Fawkes's translation that there remain hints of what we can recognize as design in the commodity table. As it "stands with its feet on the ground," we can presume that it has retained its table form and functions. It appears to have legs that sturdily hold up a top. But then it takes on an intentionality of its own that supersedes the compounded intention of its design as it "evolves out of its wooden brain grotesque ideas." How does design become mystical? Marx sets up for this move, but Fawkes's translation inadvertently removes the design thread. A more accurate, though admittedly clunky, translation would be: "The form of wood, for instance, is altered if one makes a table out of it. Nevertheless, the table continues to be wood, an ordinary, sensory thing. But as soon as it emerges as a commodity, it transforms into a sense-uous supra-sense-uous thing." The table has a maker ("Die Form des Holzes zum Beispiel wird

verändert, wenn *man* aus ihm einen Tisch macht,"[28] italics mine) who intends for the wood to take on the form and function of a table. This maker is erased in the Fawkes ("The form of wood, for instance, is altered if a table is made out of it") but is important because it is a source of intention that is superseded by the table's own "grotesque ideas" once it has been transformed into a commodity. An "ordinary table" is one with legible intention. But when it "transforms" into a commodity, it becomes a different kind of thing – one separated from its production and that can no longer be made "sense" of. The mystical, then, is how we perceive design that we cannot make sense of; we detect something like intention but cannot situate it.

The slippage between what may seem like mysticism and technological design is particularly interesting for the study of literary guns, because of the long tradition of magical or otherwise unpredictable technology in narrative. Jesse Molesworth, for example, challenges "the enduring influence of the agenda mapped out almost fifty years ago by Ian Watt in "Realism and the Novel Form," the profound statement that, more than any other, invented the sub-field of Enlightenment and the Novel" studies."[29] He looks instead to the popularity of tarot cards and lotteries in the 18th century to explore what he identifies as threads of magic and enchantment. For all the novel's purported investment in causality, he argues, its plots depend on improbable occurrences. He differs from other literary critics and historians of science on the question of chance and the Enlightenment[30] in his particular focus on plot, as he reads scenes in which

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[28] Marx, 53.

[29] Jesse Molesworth, *Chance in the Eighteenth-Century Novel: Realism, Probability, Magic* (Cambridge: Cambridge University Press, 2010): 2.

[30] Lorraine Daston, *Classical Probability in the Enlightenment* (New Jersey: Princeton University Press, 1995); Thomas M. Kavanagh, *Enlightenment and the shadows of chance: The*

characters seek "freedom from the tyranny of typicality"[31] and thereby take risks that go against common sense. But what Molesworth identifies as magic is not so much related to what he deems "older, more superstitious views,"[32] as to a new mystification of design.

The lottery, as something that is both entrenched in theories of probability and seems to invite superstition, is a particularly relevant example. Indeed, the opening of Henry Fielding's *The Lottery* (1732), which features an exchange between lottery seller Mr. Stocks and a buyer, illustrates the extent to which the form of superstition in the case of the lottery is tied to the opacity of the lottery's design:

> I Buy. Is not this a house where people buy lottery tickets?
> Stoc. Yes, Sir – I believe I can furnish you with as good tickets as any one.
> I Buy. I suppose, Sir, 'tis all one to you, what number a man fixes on.
> Stoc. Any of my Numbers.
> I Buy. Because I wou'd be glad to have it, Sir, the number of my own years, or my wife's; or, if I cou'd not have either of those, I wou'd be glad to have it the number of my mother's.
> Stoc. Ay, or suppose now, it was the number of your grandmother's?
> I Buy. No, no! She has no luck in lotteries: she had a whole ticket, once, and got but fifty pounds by it.
> Stoc. A very unfortunate person, truly. Sir, my clerk will furnish you, if you'll walk that way up to the office. Ha! ha, ha! – There's one 10,000 l. got. – What an abundance of imaginary rich men will one month reduce to their former poverty.[33]

The buyer's preference for a number that corresponds to his, his wife's, or his mother's birthday certainly has the appearance of superstition. But it is a rather imprecise superstition. He seems to be reasonably happy with any one of three numbers. His grandmother's is the only one he is

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novel and the culture of gambling in eighteenth-century France (Baltimore: Johns Hopkins University Press, 1993).

[31] Molesworth, *Chance*, 61.

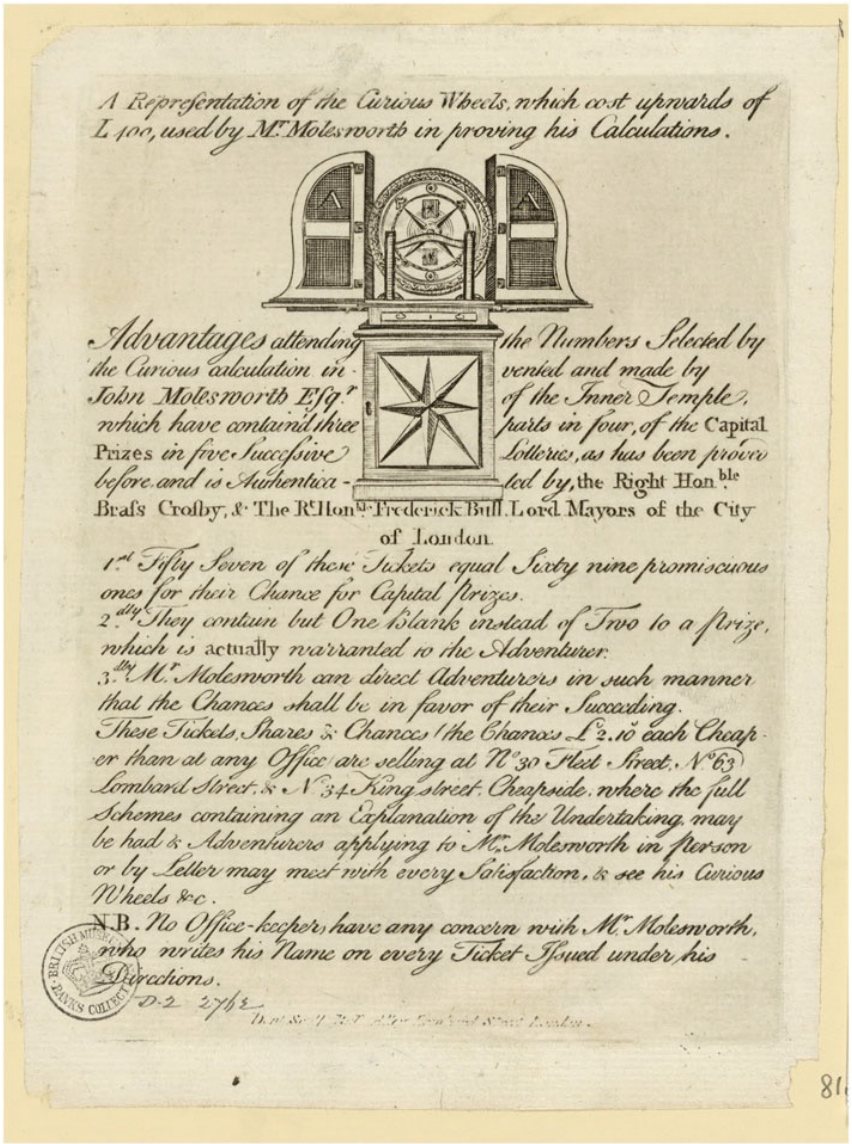
[32] Molesworth, i.

[33] Henry Fielding, *The Lottery* (London: J. Watts, 1748): 5.

adamant about not purchasing, and the reason he provides interestingly spotlights the eventual value of the ticket ("she had a whole ticket, once, and got but fifty pounds by it"). Its exchange value, one could say, turned out to be disappointing. The lottery ticket cannot quite be made sense of not because of any supernatural force, but because it is a commodity, dissociated from its contexts of production. Mr. Stocks is one of many lottery ticket sellers (he claims he can provide "as good tickets as any one"), all of whom are middlemen not directly involved with the lottery-making. He is but one source of intention in the compounded intention of the lottery. The specific numbers and calculations, or in other words the specifics of how the lottery works, are beyond both the buyer's and the seller's knowledge. Nevertheless, the inaccessibility of the seller's intention is representative of the more general opacity of lottery design, as much of the plot involves seller schemes and scams. This is cued at the very opening of the play, where Mr. Stocks appears to sympathize with the buyer's superstitions during the sale but does an about-face as soon as the buyer leaves. He rejoices over his profit and ridicules the buyer. ("A very unfortunate person, truly. […] Ha! ha, ha! – There's one 10,000 l. got. – What an abundance of imaginary rich men will one month reduce to their former poverty.") The play, which is purportedly about the irrationality of buying lottery tickets, features untrustworthy people as the main deterrent. It is at least as much about the difficulty of accessing intentionality as it is about the low probability of winning.

Though the lottery is different from a technological object such as a gun, it is illustrative of how mysticism can arise from design that we cannot quite make sense of. And, in fact, there would be a machine later in the century that roughly materialized lottery design. In the 1770's, lottery ticket seller John Molesworth, esq. began to make waves by claiming that he had invented

a "Curious Wheels"[34] machine that selects numbers that are more likely to win. As he explains it, the machine works based on his mathematical calculations. He writes in "Proofs of the Reality and Truth of Lottery Calculations" (1774) that "I have had near a hundred lotteries on various plans, drawn from my own wheels, in order to be thoroughly convinced that no error or


A Representation of the Curious Wheels, which cost upwards of L 100, used by Mr. Molesworth in proving his Calculations.

Advantages attending the Numbers Selected by the Curious calculation invented and made by John Molesworth Esqr. of the Inner Temple, which have contain'd three parts in four, of the Capital Prizes in five Successive Lotteries, as has been proved before, and is Authentically attested by, the Right Honble Brass Crosby, & The Rt Hon.ble Frederick Bull. Lord Mayors of the City of London.

1st Fifty Seven of these Tickets equal Sixty nine promiscuous ones for their Chance for Capital Prizes.

2dly They contain but One Blank instead of Two to a Prize, which is actually warranted to the Adventurer.

3dly Mr. Molesworth can direct Adventurers in such manner that the Chances shall be in favor of their Succeeding.

These Tickets, Shares & Chances / the Chances L2.10 each Cheaper than at any Office are selling at No 30 Fleet Street, No 63 Lombard Street, & No 34 King street Cheapside, where the full Schemes containing an Explanation of the Undertaking may be had & Adventurers applying to Mr. Molesworth in person or by Letter may meet with every Satisfaction, & see his Curious Wheels &c.

N.B. No Office-keepers have any concern with Mr. Molesworth, who writes his Name on every Ticket Issued under his Directions.

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Figure 1.6: A Representation of the Curious Wheels
"A Representation of the Curious Wheels" (draft trade card of John Molesworth). ©The Trustees of the British Museum. [Color figure at wileyonlinelibrary.com]

deception would appear in my theory, when it came to be reduced to practice."[35] In simple terms, he claims to have invented a machine that encapsulates lottery design. He acknowledges at the very start of his explanation that "the principles upon which [the lottery] is conducted, and the number of persons employed in the management of it, preclude all possibility of either error or deceit, and every doubt but, that each adventurer has an equal chance for being fortunate"[36] and indeed insists that "[t]his very equality of chance is the basis on which [his] calculations are founded."[37] But, in practice, all numbers do not win with equal frequency.

Whether Molesworth intended to scam buyers or if he genuinely believed in his calculations, there is some basis to his claims. Jakob Bernoulli proved the law of large numbers in 1713, which states that a distribution starts to look as one would expect when an experiment is repeated a large number of times.[38] If we flip a coin 10 000 times, for example, we are likely to be quite close to 5000 heads and 5000 tails. But if we only flip a coin 10 times, we may very well end up with 8 heads and 2 tails. Because the number of lotteries is small relative to the number of lottery numbers, the distribution of winning numbers may indeed look quite different from what we would theoretically expect to see.[39] What Molesworth claims his machine can do

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[35] John Molesworth, *Proofs of the Reality and Truth of Lottery Calculations: With Observations On the Museum and Adelphi Lotteries, and a Table Shewing the Value of Insurance Each Day During the Drawing of the Latter. ... By John Molesworth, Esq; ...* (London: printed for J. Williams, 1774): 12

[36] Molesworth, *Proofs*, 1.

[37] Molesworth, 1.

[38] Eugene Seneta, "A Tricentenary History of the Law of Large Numbers," *Bernoulli* 19, no. 4 (2013): 1088 – 1121.

[39] Nowadays, if one goes to the Power Ball website, one can find a breakdown of the most frequently drawn numbers.

is roughly to replicate the distributions of winning numbers as they have occurred when "reduced to practice." He does not attempt to remove the element of chance altogether, but rather relocates the anxiety around obfuscated intention that Fielding places in seller characters to a technological object. Instead of individual sources of intention affecting the lottery results as in *The Lottery*, the mysticism surrounding the lottery in Molesworth's "Wheels" has to do with the compounded intention of a lottery's design. In other words, he attempts to replicate with the machine the effects of direct and indirect intentions of lottery designers, sellers, and anyone else who had a hand in how it ultimately ends up working. If we take Molesworth at his word, his machine addresses the possible results of the lottery at work as opposed to the possible results of the lottery in theory.

Of course, the machine's own design adds yet another layer of potential mystification. Molesworth's is not the only intention embedded in the "Wheels." Though it is a novelty technology, it is nevertheless an industrial creation. Its namesake wheels, for example, were made by Henry Sidgier, who it would seem imagined various possibilities for such wheels, as he would go on to invent the rotating washing machine in 1782. It is unclear whether Molesworth was a good reader of his machine's design. Any explanation he offered revolved around the fact that the machine is based on his mathematical calculations, but he never touched on how it makes use of the calculations. In fact, he intentionally obscures the details of its design, qualifying them as "secret."[40] The machine that seemingly reads for lottery design is itself mystified. Molesworth was called both a mathematician and a conjuror by his contemporaries.[41]

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[40] Molesworth, *Proofs*, ii.

[41] Natasha Glaisyer, "Calculation and Conjuring: John Molesworth and the Lottery in Late Eighteenth-Century Britain," *Journal for Eighteenth-Century Studies* 42, no. 2 (2019): 135 – 155.

On the one hand he claims to illuminate lottery design with his machine, and on the other he obscures his machine's design.

Design-related mysticism of the kind we see with John Molesworth and the lottery, one that encounters technological design in objects embedding multiple intentions, is a particularly industrial one.[42] It is also one that we may, from a literary perspective, trace alongside the rise of the novel. If, for Lukács, "the novel tells the adventure of interiority; the content of the novel is the story of the soul that goes to find itself, that seeks adventures in order to be proved and tested by them, and, by proving itself, to find its own essence,"[43] it also tells a story of technological interiority. I am not trying to suggest that technological objects have the kind of interiority that Lukács lays out, but in their design there is something like interiority – something that requires reading.

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[42] Older forms of technological mysticism look quite different. Consider, for example, "Canacees ryng," one of the four magical technological gifts in Chaucer's "The Squire's Tale": "Tho speeke they of Canacees ryng,/And seyden alle, that swich a wonder thing/Of craft of rynges herde they nevere noon;/ Save that he Moyses, and king Salomon/Hadde a name of konnyng in swich art."[42] (l. 247-251). The squire describes the ring as a feat of ring craft unknown to all save Moses and King Solomon. Those in attendance at the banquet where the ring is presented wonder not so much at the ring's design – in fact, not much more is said about the ring itself – as at its designer. They attribute the ring's mystification to a singular human intention. Or, consider Helena's invocation to bullets in *All's Well That Ends Well*: "O you leaden messengers,/That ride upon the violent speed of fire,/Fly with false aim; move the still-peering air,/That sings with piercing; do not touch my lord."[42] Though a rather different example on the surface, Helena too appeals to a singular human-like intention, as she apostrophizes the bullets.

Geoffrey Chaucer, "The Squire's Tale," *The Canterbury Tales* (Peterborough: Broadview Press, 2012): l. 247-251.

William Shakespeare, *All's Well That Ends Well* (New York: Oxford University Press, 1998): III.ii.111 – 114.

[43] Georg Lukács, "From The Theory of the Novel: A Historico-Philosophical Essay on the Forms of Great Epic Literature," *Theory of the Novel: A Historical Approach*, ed. Michael McKeon (Baltimore: Johns Hopkins University Press, 2000): 204.

To illustrate what I mean by reading a technology, I turn here to Daniel Defoe's *Robinson Crusoe* (1719) which, for Ian Watt,[44] is arguably where the tradition of the novel begins. More specifically, I want to look at the scene where Robinson Crusoe describes Friday's first interactions with his gun. Crusoe's guns have made appearances in practically all areas of *Robinson Crusoe* criticism, from its relation to Lockean theory to its interest for postcolonial theory and critical race studies.[45] In these contexts, the guns are often invoked as symbols of industrialism and/or power. Such an approach treats the guns as Crusoe himself does, as tools that are coterminous with his will and that do not need to be interrogated, as something that does not require reading. For all the critical interest in the coloniality of the novel, readings of this scene never seem to pay attention to Friday's perspective. And yet, his is the more perceptive one.

> I took him out with me one morning to the woods. I went, indeed, intending to kill a kid out of my own flock; and bring it home and dress it; but as I was going I saw a she-goat lying down in the shade, and two young kids sitting by her. I catched hold of Friday. "Hold," said I, "stand still;" and made signs to him not to stir: immediately I presented my piece, shot, and killed one of the kids. The poor creature, who had at a distance, indeed, seen me kill the savage, his enemy, but did not know, nor could imagine how it was done, was sensibly surprised, trembled, and shook, and looked so amazed that I thought he would have sunk down. He did not see the kid I shot at, or perceive I had killed it, but ripped up his waistcoat to feel whether he was not wounded; and, as I found presently,

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[44] Ian Watt, *The Rise of the Novel* (Berkeley: University of California Press, 2001).

[45] Christopher F. Loar, "How to Say Things with Guns: Military Technology and the Politics of *Robinson Crusoe*," *Eighteenth Century Fiction* 19, no. 1 (2006): 1-20;

R. John Williams, "Naked Creatures: *Robinson Crusoe*, The Beast, and The Sovereign," *Comparative Critical Studies* 2, no. 3 (2005): 337-348;

Manuel Schonhorn, *Defoe's Politics Parliament, Power, Kingship, and Robinson Crusoe* (Cambridge: Cambridge University Press, 1991);

Carol Kay, *Political Constructions: Defoe, Richardson, and Sterne in Relation to Hobbes, Hume, and Burke* (Ithaca: Cornell University Press, 1988).

> thought I was resolved to kill him: for he came and kneeled down to me, and embracing my knees, said a great many things I did not understand; but I could easily see the meaning was to pray me not to kill him.
>
> I soon found a way to convince him that I would do him no harm; and taking him up by the hand, laughed at him, and pointing to the kid which I had killed, beckoned to him to run and fetch it, which he did: and while he was wondering, and looking to see how the creature was killed, I loaded my gun again. By-and-by I saw a great fowl, like a hawk, sitting upon a tree within shot; so, to let Friday understand a little what I would do, I called him to me again, pointed at the fowl, which was indeed a parrot, though I thought it had been a hawk; I say, pointing to the parrot, and to my gun, and to the ground under the parrot, to let him see I would make it fall, I made him understand that I would shoot and kill that bird; accordingly, I fired, and bade him look, and immediately he saw the parrot fall. He stood like one frightened again, notwithstanding all I had said to him; and I found he was the more amazed, because he did not see me put anything into the gun, but thought that there must be some wonderful fund of death and destruction in that thing, able to kill man, beast, bird, or anything near or far off; and the astonishment this created in him was such as could not wear off for a long time; and I believe, if I would have let him, he would have worshipped me and my gun.
>
> As for the gun itself, he would not so much as touch it for several days after; but he would speak to it and talk to it, as if it had answered him, when he was by himself; which, as I afterwards learned of him, was to desire it not to kill him. Well, after his astonishment was a little over at this, I pointed to him to run and fetch the bird I had shot, which he did, but stayed some time; for the parrot, not being quite dead, had fluttered away a good distance from the place where she fell: however, he found her, took her up, and brought her to me; and as I had perceived his ignorance about the gun before, I took this advantage to charge the gun again, and not to let him see me do it, that I might be ready for any other mark; but nothing more offered at that time.[46]

What may, on a first reading, seem like irrational behavior by Friday is actually rather insightful. If he had spoken to the gun "desir[ing] it not to kill him" without also imploring Robinson Crusoe not to kill him, we might be right to characterize his attitude toward the gun as irrational. But he does both. This suggests that he perceives that the gun may not be entirely under Crusoe's control, that it is not merely an extension of its wielder's will, and that it might have something that is like intention of its own. He also realizes that the shooting action is a result of

[46] Daniel Defoe, *Robinson Crusoe*, ed. Evan R. Davis (Peterborough: Broadview Press, 2010): 224 – 225.

compounded intention – both Crusoe's desire and the gun's design. Granted, he assumes the gun has a form of intention that is human-like, but he nevertheless intuits that it has design.

Moreover, there is a good reason for why Friday can intuit that the gun has design but cannot understand how it works: Crusoe purposefully obscures the design. He allows Friday access to only parts of it, by shooting without showing Friday the mechanisms involved. When he shoots the bird, he discovers that Friday "was the more amazed, because he did not see me put anything into the gun." With this observation, he prepares his gun for another shot when he knows Friday cannot observe him. He directs Friday to retrieve the bird and explains to the reader that "as I had perceived his ignorance about the gun before, I took this advantage to charge the gun again, and not to let him see me do it." Crusoe intentionally prevents Friday from understanding that the gun requires a gunpowder charge in order to go off. Friday is, essentially, attempting to read an incomplete gun. If he perceives the gun as a mystical object, it is because Crusoe mysticized it. Here again, in this paradigmatic case, mysticism is, finally, a symptom of unreadable design.

Technology as Narrative Position: Round Guns and *Wuthering Heights*

To say, that technological objects have something like interiority is to assert a degree of similarity between technology and character. While that is indeed my intention, I want to first clarify that I do not mean this in the vein of theories of the nonhuman or vibrant matter.[47] My

[47] Katherine N. Hayles, *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago Press, 2017);

Donna Haraway, "A manifesto for cyborgs: science, technology, and socialist feminism in the 1980s," *Socialist Review* 15, no. 2 (1985): 65-107;

Jane Bennet, *Vibrant matter: A Political Ecology of Things* (Durham: Duke University Press, 2010).

concern is not with ontology but with narrative – with the fact that technology can be read and requires reading. I am interested in both resituating our literary and material understandings of technology in design and exploring the implications of what such a mode of reading does for our understanding of narrative. In literary criticism, we have yet to take the technological object itself seriously. There is a lot of insightful criticism on the cultural and literary influences of new technologies, ranging from Nicholas Daly's work on railways to Richard Menke on telegraphy to Stuart Sherman on clocks.[48] There are also Elaine Freedgood's readings of colonial objects,[49] which challenge purely metonymic understandings of technological objects[50] by reading for their material and not only symbolic significance. But, through all this interest in technological objects in literature, critical engagement remains on the level of what such objects represent rather than what they do. (Daly, for example, takes up the role of trains in melodramatic plots, but ultimately sees the train as a synecdoche for modernity.) This is a strange oversight, considering technologies do quite a lot of narrative work and are often a crucial part of narrative action. In the case of guns, they can be directly responsible for the wounding or killing of characters; they are involved in actions that can often precipitate a turning point in plot. In this final section, I

[48] Nicholas Daly, *Literature, technology, and modernity, 1860-2000* (Cambridge: Cambridge University Press, 2004).

Richard Menke, *Telegraphic Realism: Victorian Fiction and Other Information Systems* (Palo Alto: Stanford University Press, 2008).

Stuart Sherman, *Telling time: clocks, diaries, and English diurnal form, 1660-1785* (Chicago: University of Chicago Press, 1996).

[49] Elaine Freedgood, *The Ideas in Things: Fugitive Meaning in the Victorian Novel* (Chicago: University of Chicago Press, 2006).

[50] *Metonymy in Language and Thought*, ed. Klaus-Uwe Panther and Günter Radden (Amsterdam: John Benjamins Publishing, 1999).

argue that we need to rethink the status of technology in literature as its own kind of narrative position.

The recent revival of interest in character studies makes a point of thinking about characters as though they are people. Alex Woloch, for instance, conceives of "character-space"[51] as the space of attention apportioned to persons in narrative. More recently, Amanda Anderson, Rita Felski, and Toril Moi have come together to "consider the taboo on treating characters as if they were real people, what it means to identify with characters, and the experience of thinking with characters."[52] Such criticism is a long way from Jonathan Culler's structuralist treatment of characters as "cultural models" stemming from a "system of convention,"[53] in which a reader's understanding of character is built on culturally informed, preexisting assumptions. Technology criticism has not benefited from this shift. It is very much still understood as a "system of conventions," where a technological object is not examined for how its multiplicity of possibilities is narratively managed and is instead understood narrowly based on the limits of its representation. But, technology, too, merits being treated as, to borrow Anderson, Felski, and Moi's term, "real."

By "real" technology I mean that it can be right and indeed necessary to extrapolate a technology's design from its limited representation – that a vast range of possible actions are embedded in technological objects that appear in narrative, even though they do not all take place. Friday's interaction with Robinson Crusoe's gun, for example, gestures at the possibility

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[51] Alex Woloch, *The One Vs. The Many: Minor Characters and the Space of the Protagonist in the Novel* (Princeton: Princeton UP, 2003): 18.

[52] Amanda Anderson, Rita Felski, and Toril Moi, *Character: Three Inquiries in Literary Studies* (Chicago: University of Chicago Press, 2019): 1.

[53] Jonathan Culler, *Ferdinand de Saussure* (Ithaca: Cornell University Press, 1976, 1986): 122.

that the gun may perform an action unintended by Crusoe. The fact that this does not happen in the novel means only that. It does not mean that Crusoe has a particular kind of gun that could never act outside of his intention. Similarly, guns that perform actions unintended by their users, such as Madame Defarge's gun in Charles Dickens's *A Tale of Two Cities* (1859) with which she inadvertently shoots herself or the gun in Thomas Hardy's *Far From the Madding Crowd* (1874) with which Boldwood fails to kill himself, do not do so inevitably. The narrative work of these guns is not done simply through presence. A gun, even in narrative, has design, and narrative design of a technological object has to account for its "real" design.

Just as there are what E.M. Forster termed flat and round characters,[54] there are also what we may think of as flat and round technologies. The distinction is, of course, qualitative and not meant to be absolute, but it addresses the disparity of narrative investment in illuminating a technology's design. Flat guns are characterized almost exclusively by the results of the actions to which they contribute. Madame Defarge's gun in *A Tale of Two Cities* is an example of this. The gun is not even named, and its presence is narratively apparent only in its action ("Madame Defarge's hands were at her bosom. Miss Pross looked up, saw what it was, struck at it, struck out a flash and a crash, and stood alone – blinded with smoke."[55]) The gun in the *Robinson Crusoe* scene with Friday is on the rounder side, as Friday's interaction with the gun devotes narrative space to its design. Boldwood's double-barreled gun in *Far from the Madding Crowd* is even rounder. Hardy expounds on the gun's design as Boldwood murders Troy and then attempts to turn the gun on himself:

> He had turned quickly, taken one of the guns, cocked it, and at once discharged it at Troy.

[54] E.M. Forster, *Aspects of the Novel*. (San Diego: Houghton Mifflin Harcourt, 1965): 65 – 82.

[55] Charles Dickens, *A Tale of Two Cities* (London: Penguin, 2000): 382 – 383.

> Troy fell. The distance apart of the two men was so small that the charge of shot did not spread in the least, but passed like a bullet into his body. He uttered a long guttural sigh – there was a contraction – an extension – then his muscles relaxed, and he lay still.
>
> It was double-barreled, and he had, meanwhile, in some way fastened his hand-kerchief to the trigger, and with his foot on the other end was in the act of turning the second barrel upon himself. Samway his man was the first to see this, and in the midst of the general horror darted up to him. Boldwood had already twitched the handkerchief, and the gun exploded a second time, sending its contents, by a timely blow from Samway, into the beam which crossed the ceiling.[56]

Setting up for the failure of Boldwood's suicide attempt, Hardy gives insight into aspects of the gun's design that help explain the subsequent result of its going off. Though he never names exactly what kind of gun it is, we can deduce that it was probably a double-barreled shot gun. In the murder scene, we learn that the gun fired shot rather than a bullet. And in Boldwood's attempt to turn the gun on himself, we learn that it is most certainly a long gun, as he stabilizes the gun with his foot and needs the extended length from a handkerchief in order to reach the trigger. Even before Boldwood pulls the trigger, we are given to understand that though the gun can contribute to considerable harm at short range, as in the case of Troy's murder, its length makes it rather unwieldy when it comes to suicide. There are also many interesting flat guns in literary texts.[57] But because of this chapter's focus on reading design, I would like to devote the remainder of this section to a particularly salient example of gun roundness.

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[56] Thomas Hardy, *Far from the Madding Crowd* (Hertfordshire: Wordsworth Editions, 1993): 299.

[57] For example, the gun collection in Braddon's *Aurora Floyd* ("the sight of fire-arms upon the table had a magnetic attraction for him, and he drew the Venetian shutter a little way further ajar, and slid himself in through the open window.")
Mary Elizabeth Braddon, *Aurora Floyd* (Peterborough: Broadview Press, 1998): 325.

The battleship guns in Woolf's *Jacob's Room* ("At a given signal all the guns are trained on a target which (the master gunner counts the seconds, watch in hand—at the sixth he looks up) flames into splinters.")

Emily Brontë's *Wuthering Heights* (1847) features a number of noteworthy gun scenes. We see the first hint of potential gun action at the end of chapter 9, when Nelly recounts her fears that a drunk Hindley might inadvertently harm someone with his gun: "I went to hide little Hareton, and to take the shot out of [Hindley's] fowling-piece, which he was fond of playing with in his insane excitement, to the hazard of the lives of any who provoked, or even attracted his notice too much; and I had hit upon the plan of removing it, that he might do less mischief if he did go the length of firing the gun."[58] She practices forward-looking responsibility, and acts in a manner commensurate with her assessment of both Hindley's intention and the gun's design. Removing the shot would effectively neutralize its threat, but only because she is correct that Hindley simply enjoys playing with his gun when drunk. Such a measure would likely be insufficient, if Hindley were deliberately planning to shoot someone.

Indeed, by chapter 13, Hindley shows Isabella a strange knife-pistol and tells her that he fantasizes about killing Heathcliff with it. As Isabella details in her letter to Nelly, it was a "curiously-constructed pistol, having a double-edged spring knife attached to the barrel."[59] Though she refers to it as a pistol, she is mesmerized by the knife and "[takes] the gun from his hand and touch[es] the blade." [60] The narrative spotlight on the knife lays the groundwork for the knife-pistol's eventual action in chapter 17. By this time, Hindley is no longer "drinking at a

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Virginia Woolf, *Jacob's Room* (San Diego: Houghton Mifflin Harcourt, 2008) :164

The Gatling guns in Twain's "Time Travel Contexts from *A Connecticut Yankee in King Arthur's Court*" ("The thirteen gatlings began to vomit death into the fated ten thousand.") Mark Twain, *Tales of Wonder* (Lincoln and London: University of Nebraska Press, 2003): 92.

[58] Emily Brontë, *Wuthering Heights*, (Oxford: Oxford University Press, 2009): 64.

[59] Brontë, 123.

[60] Brontë, 123.

point below irrationality"[61] and makes deliberate plans to shoot Heathcliff. But Heathcliff successfully disarms him, and Hindley is inadvertently injured by the knife of his own knife-pistol: "[Heathcliff] flung himself on [Hindley's] weapon and wrenched it from his grasp. 'The charge exploded, and the knife, in springing back, closed into its owner's wrist. Heathcliff pulled it away by main force, slitting up the flesh as it passed on, and thrust it dripping into his pocket."[62] Like a veritable "Chekhov's Gun," the knife-pistol goes off just a few chapters after it is first introduced. Perhaps it does not go off in the way Hindley intended, but with both the pistol shooting and the knife cutting, Brontë delivers doubly on the promise of action.

The final prominent gun scene, in which Hareton's gun bursts spontaneously in chapter 32, precipitates Hareton's and the younger Catherine's love plot:

> Owing to an accident at the commencement of March, he became for some days a fixture in the kitchen. His gun burst while out on the hills by himself; a splinter cut his arm, and he lost a good deal of blood before he could reach home. The consequence was that, perforce, he was condemned to the fireside and tranquility, till he made it up again. It suited Catherine to have him there: at any rate, it made her hate her room up-stairs more than ever: and she would compel me to find out business below, that she might accompany me.[63]

As a result of his gun's action, Hareton ends up spending a good deal of time indoors. The conditions of virtually forced proximity and accessibility, as necessitated by his injury, essentially trigger the novel's denouement.

Reading these four scenes together, the first thing to note is that the possibility of a gun causing harm unintended by its user is established early on. Nelly removes the charge from Hindley's gun and hides young Hareton in chapter 9 because she is concerned that Hindley's

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[61] Brontë, 154.

[62] Brontë, 157.

[63] Brontë, 277.

brash behavior will inadvertently result in someone's injury. Although her exact fears do not come to pass quite in the manner that she anticipates, their validity is more than confirmed when Hindley is eventually injured by his own knife-pistol in chapter 17. The sustained possibility of inadvertent harm,[64] both potential and actual, in these earlier chapters develops a cumulative portrayal of the guns' inclined behavior. When we eventually arrive at Hareton's spontaneously bursting gun, as heavy-handed a plot device as the injury's cause may seem, in context of previous gun action, its behavior is not particularly strange. By consistently engaging the plurality of possible actions inherent in a gun's design, Brontë develops the guns into round technologies. As with characters, technological objects require contexts in which to understand their actions – especially when the action is unusual. We can imagine here a version of E.M. Forster's criteria for round characters, substituting "technology" for "character" and "design" for "life": "The test of a round [technology] is whether it is capable of surprising in a convincing way. If it never surprises, it is flat. If it does not convince, it is flat pretending to be round. [A round technology] has the incalculability of [design] about it – [design] within the pages of a book." [65] Our expectations for a technology's behavior, like our expectations for character behavior, are managed by narrative design – readers are, in a sense, taught how to read technology.

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[64] We might even note that characters can be rallied to the cause of gun unpredictability. Nelly speaks metaphorically of Catherine I and Linton's tempers as gun-like, for example: "Not to grieve a kind master, I learned to be less touchy; and, for the space of half a year, the gunpowder lay as harmless as sand, because no fire came near to explode it." Temper, it would seem, is beyond personal control and can be ignited by an external source. And though no fire lit the gunpowder of temper during that time, the potential for ignition remained because the gunpowder remained.
Brontë, 81.

[65] Forster, *Aspects*, 78.

Of course, the guns mentioned in the above passages are not all the same gun. In fact, they are three different guns: Hindley's fowling piece in the first passage, Hindley's knife-pistol in the second and third passages, and Hareton's gun in the final passage. While each gun is unique, it is also representative of guns more generally. This is evident in the fact that Hindley's "fowling piece" is frequently referred to more generally as a "gun," that the strange knife-pistol is alternately referred to as simply "pistol" or even "weapon," and that it is not even clear what type of gun Hareton was carrying, since it is only ever identified as a "gun." Technological objects are, in a sense, like Derrida's *animot*[66] – a plurality within a category that we often think of as an entity.

What this duality makes possible is a way to think about responsibility as having a similarly dual quality. Whereas Sandra Macpherson's work, for example, traces out character liability in novels, where characters are held responsible as long as they contribute to a particular harm,[67] we could say that all guns in *Wuthering Heights* are responsible for the harms caused by particular guns, because they all have the potential to inflict such harm. Hareton's gun may be the one that "burst," but such a damp and windy climate as that of the hills Hareton was wandering drastically increases the chance of misfire for flintlock guns, which were popular in

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[66] Jacques Derrida, *The animal that therefore I am* (New York: Fordham University Press, 2008): 41; Jean Grondin, "Derrida et la question de l'animal," *Cités* 2 (2007): 35.

[67] Macpherson argues, for example, that "Moll Flanders is a murderer because she has given her child to a wet nurse, and the wet nurse (it is implied) has let the infant die from neglect. And Roxana holds herself accountable for the murder of *her* daughter, despite the fact that her servant, Amy – acting without Roxana's knowledge or consent – has killed the girl."
Sandra Macpherson, *Harm's Way: Tragic Responsibility and the Novel Form* (Baltimore: John Hopkins University Press, 2010): 25.

the 17th to 19th centuries.[68] It could have happened to any gun. Responsibility, in this sense, has to do with what is made possible rather than what sets or keeps things in motion. It has to do not so much with causality as with tendency.

This paradoxical quality of technology, which makes each gun both individual and representative of guns in general, is what allows Brontë to get away with so many unlikely gun actions. Each new gun appearance builds on previous ones and reinforces the tendency of guns in *Wuthering Heights* to behave unexpectedly. I say Brontë gets away with it, not according to any personal evaluative criteria, but with respect to her contemporary critics. While some criticized her characterization and others deemed the plot improbable,[69] none took issue with the novel's denouement. Indeed, T.C. Newby (the book's publisher), in his review for *Douglas Jerrold's Weekly Newspaper* on January 15, 1848, points out the incoherence of the novel's characters but lauds the outcome of Hareton's gun bursting: "The women in the book are of a strange fiendish-

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[68] Nicolas Édouard Delabarre-Duparcq, *Éléments d'art et d'histoire militaires: comprenant le précis des institutions militaires de la France, l'histoire et la tactique des armes isolées, la combinaison des armes et les petites opérations de la guerre* (Paris: Librarie pour l'art militaire, les sciences et les arts, 1858).

[69] "[W]e must […] stipulate with [the author] that he shall not drag into light all that he discovers, of coarse and loathsome, in his wanderings, but simply so much good and ill as he may find necessary to elucidate his history—so much only as may be interwoven inextricably with the persons whom he professes to paint."
Examiner, January 8, 1848, 21.

"The success is not equal to the abilities of the writer; chiefly because the incidents are too coarse and disagreeable to be attractive, the very best being improbable, with a moral taint about them, and the villainy not leading to results sufficiently to justify the elaborate pains taken in depicting it."
Spectator, December 18, 1847, 1217.

"[A] sprawling story, carrying us, with no mitigation of anguish, through two generations of sufferers – though one presiding evil genius sheds a grim shadow over the whole, and imparts a singleness of malignity to the somewhat disjointed tale."
Atlas, January 22, 1848.

angelic nature, tantalizing, and terrible, and the men are indescribable out of the book itself. Yet, towards the close of the story occurs the following pretty, soft picture, which comes like the rainbow after a storm. "Both doors and lattices were open; […]."[70] The passage Newby goes on to quote at length is a scene of domestic bliss, in which Catherine II is lovingly teaching Hareton how to read. It narrates a time shortly after Hareton's injury, and occurs at the start of chapter 32, right before readers learn that the reason Hareton began spending so much time indoors is that he was injured by a splinter when his gun burst. That incident directly leads to his and Catherine II's falling in love, which happened over a short period of time. Such a resolution is arguably contrived. But unlike the incoherence of character upon which Newby fixates, the contrivance is built upon a coherent characterization of the novel's various guns.

Of course, the possibility for unlikely action is also narratively built into individual guns' designs. Hindley's unusual knife-pistol is a prime example. Isabella describes it as "a curiously-constructed pistol, having a double-edged spring knife attached to the barrel." Being marked as "curious," [71] the knife-pistol is situated outside of conventional understanding. Although arms

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[70] T.C. Newby, *Douglas Jerrold's Weekly Newspaper*, January 15, 1848, 77.

[71] The term "curious" may also be alluding to the "curiosities" in the Tower of London, which included such novelty arms as this 17th century axe-pistol, listed in Joseph Wheeler's 1842 *A Short History of the Tower of London; with a List of the Interesting Curiosities Contained in the Armories and Regalia*. The axe is rather thick, as its blade is hinged and opens to reveal 5 barrels operated by wheellock mechanism. The axe's handle is a sixth barrel operated by a matchlock mechanism. As a combination axe and gun, it is able to both cut and shoot. The trigger positioning, though roughly how one would expect it operate for the matchlock gun that shoots out of the axe handle, is very awkward for the wheellock guns that shoot out of the blade. The trigger lies horizontally along the body of the axe and therefore needs to be pushed upward rather than pulled inward when attempting to fire the wheellock guns. Though even less practical than Hindley's knife-pistol, it is perhaps a similar kind of curiosity that boasts of multiple optimal functions that might be more of a liability than an asset.

Joseph Wheeler, *A Short History of the Tower of London: With a List of the Interesting Curiosities Contained in the Armories and Regalia* (London: T. Hodson, 1845): 27

historian Roger D.C. Evans claims that it is "a clear and unmistakable allusion to a distinctive variety of English pistol, namely one fitted with an accessory now usually termed a Spring Bayonet" (304), he also notes that during the time Brontë was writing, "pistols with spring bayonets were rapidly becoming obsolete" (306).[72] As an unusual gun, its design requires narration. Or, as it is at best only weakly referential given its obscurity, we might even say that it is partly designed through narration.[73]

Figure 1.7: Axe-Pistol
"Wheellock combination axe and pistol (1600 – 1630)," accessed February 1, 2020, https://collections.royalarmouries.org/object/rac-object-40790.html.

[72] Roger DC Evans, "Some Notes on a Reference to a Pistol and Bayonet in Wuthering Heights," *Brontë Society Transactions* 20.5 (1992): 304.

[73] The extent to which Emily Brontë was familiar with guns is not clear, and that is somewhat beside the point anyway. But it is nevertheless interesting that John Lock and William Thomas Dixon note in their biography of Emily Brontë's father that he was a firearm enthusiast. In 1841, he sent a letter to Sir George Murray, Master General of the Board of Ordnance, to "give you something like a representation of my musket, and then, the proper explanation and my reasons," along with a sketch of suggested improvements for the Pattern 1839 Musket, which was at the time widely used in the British army.
John Lock and William Thomas Dixon, *A Man of Sorrow: The Life, Letters, and Times of the Rev. Patrick Brontë, 1777—1861* (London: Nelson, 1965).

Isabella's compact but precise description develops the facets of the knife-pistol's design that one would need to understand the way it eventually injures Hindley. This flintlock pistol with spring bayonet in the Royal Armouries collection is from Belgium c. 1800, but its mechanism corresponds to Isabella's description.

[74]

Figure 1.8: Knife-Pistol

Isabella's specification that the knife operates by way of a spring, that it is not an inflexible attachment the way non-spring bayonets are, provides a way to understand how the knife could close onto Hindley's wrist. Notice how, for the knife-pistol in the above image, closing the knife would mean folding the knife inward toward the hand holding the pistol. This is true whether the knife is attached below the barrel as in the model pictured above, or above the barrel as in other models.[75] Moreover, the fact that the knife is double-edged means that, in terms of narrating

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And according to Winifred Gérin's biography of Emily Brontë, John Greenwood, stationer at Haworth where the Brontës lived, wrote in his diary that he had seen Emily accompanying Patrick during the latter's target practice.
Winifred Gérin*, Emily Brontë: A Biography* (Oxford: Oxford/Clarendon, 1971).

[74] "Pistol – Flintlock pistol with spring bayonet," accessed February 1, 2020, https://collections.royalarmouries.org/object/rac-object-12541.html

[75] Evans, "Some Notes," 305.

enough of the gun's design to allow readers to make sense of the its eventual action, it does not matter whether the knife is attached above or below. Regardless of whether it folds upward or downward, it has an edge with which it could catch Hindley's wrist.

Brontë's technique in designing the "curious" narrative gun is reminiscent of what Viktor Shklovsky reads as estrangement in Tolstoy's work.

> Tolstoy's method of enstrangement[76] consists in not calling a thing or event by its name but describing it as if seen for the first time, as if happening for the first time. While doing so, he also avoids calling parts of this thing by their usual appellations; instead, he names corresponding parts of other things. Here is an example. In the article "Ashamed," L. Tolstoy enstranges the concept of flogging: "People who have broken the law are denuded, thrown down on the floor, and beaten on their behinds with sticks," and a couple of lines later: "lashed across their bare buttocks."[77]

Isabella's description of the knife-pistol similarly does not refer to it as such. Indeed, she does not name it at all. She provides instead a description of its parts and essentially renders it in a different form. Where Brontë's case diverges sharply from that of Shklovsky's Tolstoy, however, is in the effect of this initial estrangement. Tolstoy splits the practice of flogging into discrete parts: first denuding, then throwing down, then beating. His move is to break down flogging. Brontë, on the other hand, estranges the gun and knife objects in order to build the knife-pistol. The pistol is "curiously-constructed," and the spring knife's handle is actually the butt of a gun. Both gun and knife are defamiliarized in their new context as part of a knife-pistol combination. Indeed, Isabella's letter does not merely describe the knife-pistol's separate

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[76] Alexandra Berlina's translation uses "enstrangement" rather than "estrangement" for *ostranenie* (остранение), to preserve the effect of Shklovsky's accidental misspelling. As she explains, the word comes from *strannyi* (странный, strange), but is defamiliarized because it is missing an "n." The addition of an "n" in "enstrangement" similarly defamiliarizes the word for us.

[77] Victor Shklovsky, "Art, as device," trans. Alexandra Berlina, *Poetics Today* 36.3 (2015): 163.

components but also explains how they come to be a whole ("pistol […] having a double-edged spring knife *attached* to the barrel" (italics mine)). Whereas Tolstoy separates flogging into three parts to defamiliarize flogging, Brontë separates a technological object into two parts in order to illuminate the designs of all three. Put simply, Brontë estranges in order to access design.

The knife-pistol is a compound weapon, or in the terms put forth in this chapter, a concretization of compounded intentionality. Isabella's description delves into the design of not only the knife-pistol but also the separate knife and pistol parts. And when Nelly later recounts Hindley's threats shortly before his injury, she says he is holding "a knife and a loaded pistol,"[78] as though they are two separate objects. Although both guns and pistols have designs and therefore compounded intentionality, they also have optimal functions. While both guns and pistols can perform various actions, guns primarily shoot and knives primarily cut. Because of the probabilistic dominance of a technological object performing its optimal functions, reading for other actions made possible by its design can often, in literary contexts, mean reading scenes of inadvertent action.

With the knife-pistol, we have a technology with two optimal functions. While the knife and pistol parts of the knife-pistol both performed actions unintended by their user, can we say that the knife-pistol did so as well? Or, is it that the knife-pistol performed both actions? In which case, what should we say about the knife and pistol separately? We have come full circle, in this scene, back to United Nations Resolution 591. Hindley's knife-pistol is illustrative of how parts contribute to overall design in crucial ways, and how different threads of intention can impact action. In Nelly's description, Heathcliff "flung himself on [Hindley's] weapon and wrenched it from his grasp. The charge exploded, and the knife, in springing back, closed into its

[78] Brontë, *Wuthering Heights,* 156.

owner's wrist. Heathcliff pulled it away by main force, slitting up the flesh as it passed on." The knife-pistol behaves both as a gun and as a knife – both designs are in play within its overall design. The gun shoots, the knife cuts; the knife-pistol shoots and cuts. As they act almost simultaneously ("the charge exploded, and the knife […] closed"), it is not clear whether the knife springs back as a response to the gun's recoil or whether Heathcliff induced it to spring back while attempting to grab the weapon. It is not clear, in other words, the extent to which they are separate and the extent to which they come together as an entity. This internal tension makes the knife-pistol a particularly round technology. Its action has been painstakingly set up, and there is coherence to it, even as there is contradiction. With its complex narrative design, the knife-pistol is, as Forster would say, "capable of surprising in a convincing way." Ultimately, roundness of technology has to do not with knowability but with readability.

Technology, then, is a particular kind of narrative position. It is somewhat like character, in the way that some technologies merit narrative development of interiority (in the form of design), or in the way they contribute to action and plot movement. Yet it is not character. It has a generic quality that extends to even the most unique technological objects. Hindley's knife-pistol is both an extremely "curious" technology and representative of guns more generally. In this sense, most if not all technological objects in the realist mode cannot be entirely fictional. Writers contend with the design of real technology. In other words, writers are readers of technological design. But they are also designers of technological objects in fiction. They cannot account for all intentionalities embedded in a technology's design, or all the actions that a technology's design makes possible. The narrative space distributed to technological objects – even round ones – is fairly small. Instead, writers may develop particular aspects of an object's design that help readers make sense of its eventual actions. Perhaps I should amend what I wrote

at the start about authors being designers of narrative and not technological objects, because it certainly seems fair to say that, in some sense, Emily Brontë designs guns.[79]

[79] Many thanks to Tim Campbell, for his insight on this point.

CHAPTER 2

GUN NO.2: TECHNOLOGICAL WORLDVIEW, UTOPIA, IMPLICIT SACRIFICE

In "Internationale Architektur," Walter Gropius writes that while a work's design bears the signature of its creator, it would be wrong to place particular emphasis on the intentions of an individual. Rather, "the will for the development of a **unified** worldview that characterizes our time implies a desire to release intellectual values/virtues from their individual constraints and to elevate them to **objective validity**"[1] (bold in original, translation mine). As strange as it may seem for an avant-garde architect to extol widespread consensus, agreement is central to Gropius's conception of utopian building. His revolutionary impulse is not a destructive one, the way a movement like Vorticism was, but a constructive one. As discussed in Chapter 1, in the earlier *Idee und Aufbau des staatlichen Bauhauses*, Gropius describes building (*bauen*) as "collective work, its success depend[ing] not on the individual, but on communal interest. The

[1]Walter Gropius, *Internationaler Architektur*, (München: Albert Langen Verlag, 1925): 7.

"Zwischen einer Vielheit gleichmaessig oekonomischer Loesungsmoeglichkeiten - es gibt deren viele fuer jede Bauaufgabe - waehlt der schaffende Kuenstler innerhalb der Grenzen, die ihm seine Zeit steckt, nach persoenlichem Empfinden die ihm gemaesse aus. Das Werk traegt infolgedessen die Handschrift seines Schoepfers. Aber es ist irrig, daraus die Notwendigkeit zur Betonung des Individuellen um jeden Preis zu folgern. Im Gegenteil, der Wille zur Entwicklung eines **einheitlichen** Weltbildes, der unsere Zeit kennzeichnet, *setzt* die Sehnsucht voraus, die geistigen Werte aus ihrer individuellen Beschrankung zu befreien und sie zu **objektiver Geltung** emporzuheben."

fully purposeful building arises only from the will of an entire nation."[2] Design is not only about making objects but also about rallying consensus for the interpretation of objects.

What Gropius proposes is an interpretive shift in understanding the relation between values and design. To "release intellectual values/virtues from their individual constraints" is to negotiate individual assent of collective values – to negotiate the designer's values and the shared values of the designed object's users. While a work may be designed by specific individuals, it is designed in and for a world – in and for a community that holds shared values. We might look to beta testing as a practical example, in which users are invited to test early versions of a product and provide their feedback. These users are not designing the product *per se*, but nevertheless contribute to its final design. The final product is informed not just by what designers want but also by what users want. This is not to say that there is no variation in the values of individuals in a community, but that designed objects project ideal worlds to which individuals assent when using the objects. The usage of designed objects has an inherently normative dimension,[3] in the sense that while objects can be used in a multiplicity of ways, only particular functions are optimized. One can, for example, sleep on a table, but it is not

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[2] Translation of Walter Gropius, *Idee und Aufbau des staatlichen Bauhauses* (München: Bauhausverlag G.M.B.H., 1923)

Translation of: "Da Bauen kollektive Arbeit ist, hängt sein Gedeihen nicht vom einzelnen, sondern vom Interesse der Gesamtheit ab. Der reine zweckentbundene Bau entsteht nur aus dem Willen eines ganzen Volkes. Dieser Bauwillen ist heute nicht lebendig."

[3] Hans Harbers, *Inside the politics of technology: Agency and normativity in the co-production of technology and society* (Amsterdam: Amsterdam University Press, 2005); Ibo van de Poel and Peter Kroes, "Introduction: Technology and Normativity," *Techné: Research in Philosophy and Technology*, 10.1 (2006): 1-6; Peter Kroes, "Design methodology and the nature of technical artefacts," *Design studies*, 23.3 (2002): 287-302; Jeroen De Ridder, "The (alleged) inherent normativity of technological explanations," *Techné: research in philosophy and technology*, 10.1 (2006): 79-94.

particularly viable as sleep furniture. A room with a table and no bed is simply not designed for sleeping. The contexts of usage of designed objects both reflect and inform a world's implicit consensus of values.

In the previous chapter, to illuminate the intentionality of design, I focused on scenes of technology that are perceived as not working properly, to illuminate the intentionality in design. I argued that 1) technological objects embed both direct and indirect intentions, where direct intentions manifest in technologies that are working properly and indirect intentions manifest in accidents 2) technology in literary texts occupies a narrative position somewhat akin to character, to the extent that it undergoes development, and it is an agent of action and 3) literature is a privileged site for examining technological design. These arguments emerged as a way to conceive of technological responsibility in relation to the anticipation and judgment of potential actions. Reading a technology for what it can do also makes it possible to anticipate what it might do.

The knife-gun in *Wuthering Heights*, with which Hindley accidentally injures himself, was a case study of what I call aggregate intentionality – the accumulation of possible actions by each component itself and its relation to the whole. Technologies are governed not by just one cohesive intention, but rather by multiple ones that may even be at odds with one another. In the knife-gun's case, the technology's design incorporates both a knife and a gun, and while both do, to some extent, contribute to the same primary intention of outward-directed harm, the way the knife folds backward also makes it potentially dangerous to its user. Hindley's accidental injury, in other words, is accidental only in the novel's characters' and our interpretation of the knife-gun's actions; the technology acted in accordance with its design, just not in accordance with our understanding of its primary intention. Yet, the distinction between whether we consider

something to be working properly or not is a consequential one. What kind of norms are involved in making such distinctions? And what kinds of actions do we consider acceptable? How is consensus managed around the function of technological objects? Who are technologies made for?

This chapter turns to utopian fiction to address just these questions. Reading scenes in which technologies are considered to work, I examine user interpretations of design to develop an understanding of how consensus is built around technological objects. The Chekhov's guns in this chapter take the form of a variety of technological objects. But even the literal guns, including the moon gun in Verne's *From the Earth to the Moon* and the French gun blueprints in Conrad's *The Secret Agent*, are not marked by their actions, as the knife-gun in *Wuthering Heights* was, so much as they are characterized by the ways users interpret them. Whereas a technological object's aggregate intentionality (its possible actions) can be read directly from its design, our interpretation of whether a technology works is grounded in a sense of shared intention; it reflects what the generic user understands and wants the technology to be for. The negotiation of a collective worldview determines the actions that are included in our understanding of whether a certain technology works properly and the actions that are excluded. As a consequence, such a negotiation entails a kind of implicit sacrifice. Consensus around whether a technology works also includes judgment of which forms of malfunction are acceptable, meaning that there is also implicit agreement around what can be sacrificed. Indeed, there is a difference between locating biases in the designer and recognizing that there is general acceptance of biased design on the user end.

Though properly translated as worldview, Gropius's word for utopian world building is not *Weltanschauung*, but *Weltbild* – or world picture, in literal translation. A term embraced by

both Ludwig Wittgenstein and Martin Heidegger, *Weltbild* appears primarily in scientific contexts. More specific than the Kantian *Weltanschauung* or "intuition of the world,"[4] *Weltbild* recruits the unquestioned assumptions that underpin what we consider to be knowledge. While Wittgenstein's interest in the term is primarily epistemological[5] and Heidegger's is metaphysical,[6] Gropius's use of *Weltbild* has a significant ethical dimension. Indeed, for

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[4] "For it is only through this faculty and its idea of a noumenon, which latter, while not itself admitting of any intuition, is yet introduced as substrate underlying the intuition of the world as mere phenomenon, that the infinite of the sensible world, in the pure intellectual estimation of magnitude is *completely* comprehended *under* a concept, although in the mathematical estimation *by means of numerical concepts* it can never be completely thought."

Immanuel Kant, *Critique of Judgment*, trans. James Creed Meredith (Oxford: Oxford University Press, 2007): 85.

In the original:

Denn nur durch dieses und dessen Idee eines Noumenons, welches selbst keine Anschauung verstattet, aber doch der Weltanschauung, als bloßer Erscheinung, zum Substrat untergelegt wird, wird das Unendliche der Sinnenwelt in der reinen intellectuellen Größenschätzung unter einem Begriffe ganz zusammengefaßt, obzwar es in der mathematischen durch Zahlenbegriffe nie ganz gedacht werden kann.

Kant, Immanuel, *Die drei Kritiken*, (Köln: Anaconda Verlag, 2015): 803

[5] Wittgenstein offers an example using Lavoisier's chemistry experiments: "Lavoisier makes experiments with substances in his laboratory and now he concludes that this and that takes place when there is burning. He does not say that it might happen otherwise another time. He has got hold of a definite *Weltbild* – not of course one that he invented: he learned it as a child. I say *Weltbild* and not hypothesis, because it is the matter-of-course foundation for his research and as such also goes unnoticed."[5] Lavoisier's *Weltbild* is one in which the laws of physics and chemistry are assumed to be true and the scientific method is assumed to work. These assumptions underpin his experiments, even though they are not registered as part of the experiments.

[6] "world-picture essentially means not a picture of the world, but the world conceived as picture. Beings as a whole are now taken in such a way that they are in being first and only insofar as they are presented [gestellt] by man the representer and producer [vorstellend-herstellenden Mensch]. The emergence of the Weltbild involves an essential decision about beings as a whole. The being of beings is sought and found in the representedness of beings."

Gropius, *Weltbild* is explicitly a question of cultivating values/virtues (*Werte*). That a "unified worldview" is something to be developed suggests a concept of a *Weltbild* as an active process. "Objective validity" is less about truth than it is about implicit consensus. "Intellectual values/virtues" (*geistigen Werte*), once normalized and therefore detached from individual subjects, take on an objective appearance.

As Lorraine Daston and Peter Galison put the matter, "[t]o be objective is to aspire to knowledge that bears no trace of the knower."[7] Yet, the knower, like Gropius's creator, does leave their trace in the work. Querying the ostensible objectivity of the study of scientific objects, for instance, Daston and Galison emphasize how each "encodes a technology of scientific sight implicating author, illustrator, production, and reader. Each of these images is the product of a distinct code of epistemic virtue."[8] That technologies can embed collective values, whether epistemic in Daston and Galison's case (values governing how we know) or intellectual in Gropius's case (values informing our orientation toward what we know), is a key consideration for reading technology. The *Weltbild* that underpins a technology's design figures the world for which the technology is made – a circumscribed space of ideological consensus at the intersection of the world in which it is made and the world it hopes to create. Understood this way, the technological object becomes a site of negotiation of individual and collective values. As artifacts of the present, technologies contain information not just about their intended actions,

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Martin Heidegger, "The Age of the World Picture," *The Question Concerning Technology and Other Essays*, trans. William Lovitt (Harper & Row: New York, 1977): 129f.

[7] Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2010): 17.

[8] Daston and Galison, 18

which were the subject of the previous chapter, but also about the contexts in which their actions are desirable and by extension the values of their makers and users.

For a more concrete example of how to read the collective valuation of technology, we might turn to a scene illustrated by Bruno Latour:

> If, to take a trivial enough example, you sit in a chair in a lecture hall surrounded by well-ordered tiers of students listening to you in an amphitheater, I need only half a day's work in the university archives to find out that fifteen years ago and two hundred kilometers away an architect, whose name I have found and whose exploratory scale models I have ferreted out, has drawn the specifications of this place down to the centimeter. She had no precise idea that you would be lecturing out loud today, and yet she anticipated, in a gross way, one aspect of such a scene's script: you will have to be heard when you speak; you will sit at the podium; you will face a number of students whose maximum number, space requirements, etc. must be taken into consideration. No wonder that, fifteen years later, when you enter this scene, you feel that you have not made it all up and that most of what you need to act is already in place. Of course, the space has in fact been tailored for you – the generic you, that is, the large part of you.[9]

In the context of actor-network theory, this scene is composed to show the ways in which objects act upon people. But it is also a scene of technological *Weltbild*. The chairs, podium, and their placement are imbued with the architect's pedagogical values, and these values also largely accord with the professor's and students'.

Indeed, the room's design embeds a collective intention of "the generic you." For many, there would be nothing particularly remarkable about a space that supports a pedagogical dynamic in which the professor is the authoritative transmitter of information and students are the passive receptors of information. Latour then goes on to write that "[y]ou might decide to […] play the role of the May 1968 rebellious teacher by reassembling the chairs to form a less 'authoritarian'circle." Though he raises this possibility to illustrate that while "some material element of the place does not 'determine' an action doesn't mean you can conclude they do

[9] Latour, Bruno, *Reassembling the Social*, (Oxford: Oxford University Press, 2005): 194-195.

nothing,"[10] this hypothetical also affirms the inherence of values in design. Latour's facetious tone with the quotation marks around "authoritarian" notwithstanding, this example acknowledges that the lecture hall design aligns better with some political values than others. While the values privileged by the design may be largely unnoticed by those who share them, the lecture hall may not be an equally comfortable place for all.

That technologies cultivate a unified *Weltbild* is not surprising. Technological objects organize and amplify a community's values. Such communities need not be large, however; while some technologies, such as television or the internet, might connect the entire world, many technologies build localized, smaller communities. The scope of the Berlin key, for example, is a few blocks of tenement and those who live in it. A large double-sided key that needs to be pushed through to the other side of the door in order to be retrieved,[11] the Berlin key effectively forces tenants to remember to lock their doors, because the only way to remove the key from the lock is to push it to the other side of the door and then lock it from there. Johann Schweiger, the patent holder, explains that his invention seeks to "induce the tenant to always re-lock the door, which the landlord or caretaker would have locked in the evening"[12] (translation mine). While Latour reads the Berlin key as an example of an object mediating interactions between people,

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[10] Latour, 195.

[11] A durchsteckbarer Schlüssel, as it was described in its patent, meaning literally a push-through-able key

[12] Johann Schweiger, 1933, Schloss fuer Tueren mit durchsteckbarem Schluessel und einer bei geoeffneter Tuer in Wirkung tretenden Riegelsperre. Germany. DE 000000452110 A, filed October 18, 1931, and issued September 30, 1933.

"den Mieter zu veranlassen, die abends von dem Hauswirt oder Hauswart abgeschlossene Tür nach dem Öffnen auf jeden Fall wieder zuschließen zu müssen, indem der zum Öffnen des Schlosses eingeführte Schlüsselbart von der gleichen oder von der anderen Seite nur dann wieder herausgezogen werden kann, wenn das Schloß wieder in die Schließstellung vorgebracht ist."

we can also read it more explicitly for the kinds of interactions desired by those who make it and those who use it – the kind of ideal world it imagines for the tenants and landlords or caretakers of tenements. It is not a complete world, but it is a micro-world in which tenants and landlords or caretakers place equal value on locked doors (even if their motivations for that valuation may differ.) It is a world that values landlord and caretaker labor more than it is valued in tenements with ordinary single-sided keys. In the world of the Berlin key, landlord and caretaker convenience is privileged. Conversely, we might say that the world of tenements with single-sided keys is one that accepts or is even willing to sacrifice landlord or caretaker comfort for the sake of the convenience of a more pocket-sized key for tenants.

Of course, those who use typical single-sided keys may not consciously register their tacit approval of this sacrifice, precisely because such keys are ordinary. Yet, implicit sacrifices abound in technological design and usage. We are probably all familiar, for example, with the weighing of pros and cons involved in choosing a new cell phone. The iPhone 12 mini is the smallest and cheapest iPhone 12 model. It is lighter, fits better in the average sized pocket, and is more comfortable to hold for most hands, but it has a smaller display and its battery holds less charge than the iPhone 12 and iPhone 12 pro. The iPhone 12 Pro boasts a third camera lens, which gives it twice as much zoom range as the other two models and allows it to take considerably better photos in low light conditions, but it is also considerably heavier and more expensive. Depending on the technology, such sacrifices may be more consequential than a landlord or caretaker having to re-lock a door throughout the night. Seatbelts, for example, appear to be less likely to prevent serious injury in women,[13] and self-driving cars are more

[13] Keith Barry, "New Data Expands on Why Women Have a Greater Risk of Injury in Car Crashes," Consumer Reports, accessed May 13, 2021, https://www.consumerreports.org/car-safety/new-data-expands-on-why-women-have-a-greater-risk-of-injury-in-car-crashes/.

likely to hit pedestrians with darker skin tones.[14] This is not to suggest that we should dispense with seatbelts, but that it is necessary to acknowledge the biases in the implicit sacrifices of our technologies. Calls for more diversity in engineering fields, for example, are not about diversifying representation for the sake of representation, but about diversifying the worldviews of those involved in the assessment of implicit sacrifice. We can discern from reading a seatbelt's design that it will not be equally effective for all body sizes and body types, but whether we accept or even notice such a discrepancy is a question of values. Our designs recruit a unified *Weltbild* and perpetuate implicit values. That we would see evidence of sex bias in seatbelts, race bias in self-driving cars, even class bias in keys is arguably a matter of course. The worlds – and therefore the sacrifices – our technologies imply are indicative of our attitudes toward each other – who is included, who is excluded, who is prioritized in assessments of whether technologies work.

While it may seem counterintuitive to say that the measure of whether a technology works is based on shared judgment rather than the direct intentions of the technology's maker, historically this has proven to be the case. Consider, for example, debates among historians of technology regarding the history of the vibrator. Rachel P. Mains argued in her widely cited book *The Technology of Orgasm* (1999) that the vibrator was invented in order to relieve doctors from the labor of manual stimulation of the clitoris for the treatment of hysteria. Recently, however, Hallie Lieberman and Eric Schatzberg argued that such usage was not widespread, pointing out that Mains' evidence is largely circumstantial: her sources document the medical

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[14]Karen Hao, "Self-Driving Cars May Be More Likely to Hit You If You Have Dark Skin," MIT Technology Review (MIT Technology Review, April 2, 2020), https://www.technologyreview.com/2019/03/01/136808/self-driving-cars-are-coming-but-accidents-may-not-be-evenly-distributed/.

usage of vibrators as well as the practice of manually stimulating the clitorises of hysteria patients, but they do not explicitly mention vibrators being used to stimulate the clitoris. The debate centers not on whether the vibrator *could* have been used this way (based on its design, Lieberman and Schatzberg acknowledge it could have), but rather whether such usage would have been normative. The crux of the debate, in other words, centers on their differing assessments of Victorian beliefs around the female body, female sexuality, medical documentation, and even electricity – assessments that they use to reconstruct the scientific and cultural values that contextualize the usage of the vibrator. Which of a technology's uses are desirable depends on the world it is in.

In the following section, I turn to utopian literature to examine this conjunction of technological actions and the process of *Weltbild* unification. For whatever space and duration in which a technology works, the world for which it is made coincides with the world it is in – that space and duration is essentially a utopia. Indeed, as I will argue, utopia is the genre of technology. It is true that science fiction has long been considered the genre most concerned with technology,[15] but utopia, as I have been arguing, is the genre of technological world building. Science fiction speculates on worlds made possible by certain technologies from an outsider's perspective, whereas utopia is a project of developing consensus. The difference between reading technology through science fiction and reading technology as utopian project is a difference between exploring the possibilities afforded by technologies and examining how technologies build a world and work in the world. The former is speculative; the latter is interpretive. I

[15] Paul K. Alkon, *Science Fiction before 1900: imagination discovers technology*, (London: Routledge, 2013); Clark A. Miller and Ira Bennett, "Thinking longer term about technology: is there value in science fiction-inspired approaches to constructing futures?," *Science and Public Policy*, 35.8 (2008): 597-606.

develop an understanding of how consensus is built around technological objects in a reading of the river locks in William Morris's *News from Nowhere*. The locks are considered perfect, not because they never break, but because the inhabitants of Morris's utopia collectively assent to the manner of breakage and repair.

That consensus around how a technology works also includes judgment of which forms of malfunction are acceptable, however, means that there is also implicit agreement around what and who can be sacrificed. Those who lie outside the utopia's ideological borders are left out of its technology's design considerations. Indeed, sacrifice is a formal feature of utopian fiction, as a utopia maintains consensus by delimiting its interpretive boundaries. In the second half of the chapter, I move to non-utopian literature to expand on the consequences of implicit sacrifice. I take up Joseph Conrad's *The Secret Agent* to examine the structure of collective responsibility in the accidental suicide of neurodivergent character Stevie. By reading technological *Weltbild* through utopia, this chapter explores how technologies tell us about the worlds we want and the implicit sacrifices we are willing to make to maintain those worlds. What is the relation between user intentionality and design? How does utopia, both as form and as concept, help us understand the way we evaluate our technologies? And conversely, what can attention to technological objects tell us about utopia? And what can literature tell us about these aspects of world building and world maintaining? To answer these questions, I begin by developing a fuller account of utopia as technology's genre.

Technology's Genre: Utopia

In Theodor Adorno and Ernst Bloch's 1964 conversation "Möglichkeiten der Utopie heute" (The Possibilities of Utopia Today), Adorno muses that "countless so-called utopian

dreams – such as television, the possibility of traveling to other stars, moving faster than sound – have been fulfilled. But these dreams, by being realized, function as though the best things about them have been forgotten – one is not happy about them" (translation mine).[16] While he moves past this observation quickly, using it as a springboard for a psychoanalytic explanation of why we tend to associate utopia with impossibility rather than possibility,[17] I would like to stay with it

[16] Theodor W. Adorno and Ernst Bloch, "Adorno & Ernst Bloch - Möglichkeiten Der Utopie Heute (SWF 1964)," Archive.org, accessed May 13, 2021, https://archive.org/details/AdornoErnstBloch-MglichkeitenDerUtopieHeuteswf1964.

Transcription of Adorno's intro:

Wenn ich also das erste sagen soll, wozu ich vielleicht gar nicht legitimiert bin, da mein Freund Bloch schließlich der ist, der überhaupt das Wort Utopie schon in seinem Frühwerk Geister Utopie wieder zu Ehren gebracht hat, dann möchte ich zunächst einmal und daran erinnern, dass unzählige sogenannte utopische Träume — wie also das Fernsehen, wie die Möglichkeit auf andere Sterne zu kommen, wie eine Bewegung schneller als der Schall sich erfüllt haben. Dass aber diese Träume, indem sie sich erfüllt haben, alle so wirken, wie wenn dabei das Beste vergessen worden wäre, dass man ihre also nicht froh wird. Dass diese Träume selber in ihrer Verwirklichung einen eigentümlichen Charakter der Ernüchterung, des Geistes, des Positivismus und darüber hinaus der Langeweile angenommen haben. Und ich meine, das allerdings so, dass sich dabei nicht einfach darum handelt, dass das was wirklich wird, gegenüber den als unendlich vorgestellten möglichen, vorweg etwas Einschränkendes hat, sondern in einem viel handfesteren Sinn, nämlich dass man sich dann fast immer durch die Erfüllung der Wünsche, um den Inhalt der Wünsche betrogen sieht, wie in dem Märchen, wo dem Bauer drei Wünsche freigegeben sind, und der auf dem einen, ich glaube seiner Gattin eine Wurst an die Nase wünscht und einen zweiten dann dazu benutzen muss, um die Wurst von der Nase wieder weg zu wünschen. Ich meine also, man kann in die Ferne sehen, aber anstatt dass nun da also die Imago, der Lilith, die erotische Utopie aufgeht, sieht man dann bestenfalls irgendeine mehr oder minder hübsche Schlagersängerin, die eine noch um ihre Hübschheit betrügt, in dem sie anstatt sich zu zeigen irgendwelchen Unsinn singt, der im Allgemeinen darin besteht, dass Rosen und Mondnacht miteinander in Harmonie ständen, und darüber hinaus konnte man vielleicht sagen für allgemeinend, dass die Erfüllung der Utopie im Allgemeinen nur in eine Wiederholung des immer gleichen Heute besteht. Also wenn es bei Busch heißt „schön ist es auch anderswo und hier bin ich sowieso", dann beginnt dieses Wort in der Erfüllung der technischen Utopien heute eine grauselige Bedeutung anzunehmen, nämlich dass das „und hier bin ich sowieso auch besitzt ergreift von dem anderswo", wo sich noch der Mister Pief mit dem großen Perspektiv hingewünscht hat.

[17] Ernst Bloch and Theodor Adorno, "Something's Missing: A Discussion between Ernst Bloch and Theodor W. Adorno on the Contradictions of Utopian Longing," *The Utopian Function of*

for a moment. Indeed, many utopian technologies are already here, and most have been here for a long time. Adorno mentions the plane, but the train, the boat, and even the wheel were once revolutionary as well. None of these technologies feel utopian to us now, because they have become normal. What Adorno characterizes as "forgetting" denotes a shift in our relation to these objects; utopian dreams, once fulfilled, are no longer utopian.

In other words, utopias are not necessarily utopian. Though the two terms are etymologically related, they are formally distinct. Utopia is a place, while utopian is an orientation. In the eponymous book by Thomas More, Utopia is an island of unknown location. As More mentions in the prefatory letter to Peter Giles, he is "ignorant of what sea that Island

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Art and Literature: Selected Essays, trans. Jack Zipes and Frank Mecklenburg (Cambridge: The MIT Press, 1989): 3-4.

It seems to me that what people have lost subjectively in regard to consciousness is very simply the capability to imagine the totality as something that could be completely different. That people are sworn to this world as it is and have had this blocked consciousness vis-à-vis possibility, all this has a very deep cause, indeed, a cause that I would think is very much connected *exactly* to the proximity of utopia, with which you are concerned. My thesis about this would be that all humans deep down, whether they admit this or not, know that it would be possible or it could be different. Not only could they live without hunger and probably without anxiety, but they could also live as free human beings. At the same time, the social apparatus has hardened itself against people, and thus, whatever appears before their eyes all over the world as attainable possibility, as the evident possibility of fulfillment, presents itself to them as radically impossible. And when people universally say today what was once reserved only for philistines in more harmless times, "oh, that's just utopian; oh, that's possible only in the land of Cockaigne. Basically that shouldn't be like that at all," then I would say that this is due to the situation compelling people to master the contradiction between the evident possibility of fulfillment and the just as evident impossibility of fulfillment only in *this* way, compelling them to identify themselves with this impossibility and to make this impossibility into their own affair. In other words, to use Freud, the "identify themselves with the aggressor" and say that *this should* not be, whereby they feel that it is precisely *this* that *should be*, but they are prevented from attaining it by a wicked spell cast over the world."

standeth whereof [he writes] so long a treatise."[18] The place is also characterized as "Eutopie: A place of felicitie"[19] in the prefatory poem by an anonymous poet laureate of Utopia. While the dual meaning of "no-place" and "good-place" is a common starting point in much scholarship involving the concept of utopia, we might take a step further back to note that both meanings involve an idea of place. Indeed, the unexpecting traveler who stumbles into an ostensibly perfect world is an essential organizing trope in novels about utopias. Utopian, on the other hand, is not so much about what is characteristic of a place of utopia as it is about aspiring toward such a place. For Ernst Bloch, whom Adorno credits as the person who "restored honor to the word 'utopia'"[20] for the modern age, the concept of the utopian is essentially one of hope.[21] José Esteban Muñoz influentially takes up Bloch's concept to formulate queerness as utopian, in the sense that it is future-oriented. Queerness is "that thing that lets us feel that this world is not

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[18] " Thomas More, "The Utopia of Sir Thomas More : in Latin from the Edition of March 1518, and in English from the 1st Ed. of Ralph Robynson's Translation in 1551," The Library of Congress, accessed May 13, 2021, https://www.loc.gov/item/01005877/: page 7

"Nam neque nobis in mentem uenit quaerere, neque illi dicirer, qua in parte noui illius orbis Utopia sita sit."

[19] Thomas More, "The Utopia of Sir Thomas More : in Latin from the Edition of March 1518, and in English from the 1st Ed. of Ralph Robynson's Translation in 1551," The Library of Congress, accessed May 13, 2021, https://www.loc.gov/item/01005877/: Image 101

[20] Adorno and Bloch, *Möglichkeiten Der Utopie Heute*

My transcription:
"mein Freund Bloch schließlich der ist, der überhaupt das Wort Utopie schon in seinem Frühwerk Geister Utopie wieder zu Ehren gebracht hat"

[21] Ernst Bloch, *Das Prinzip Hoffnung (1. Band)*. (Frankfurt: Suhrkamp Verlag, 1985): 13.

"utopisch-prinzipielle Begriff, als der der Hoffnung und ihrer menschenwürdigen Inhalte" (13)

enough, that indeed something is missing. [… It is] essentially about the rejection of the here and now and an insistence on potentiality or concrete possibility for another world."[22] Whereas utopia is a place of complacency, utopian potential and desire is situated where there is an avowed lack. The utopian is future-oriented, whereas utopia (whether real or not) is, if not already here, already somewhere. A genre such as science fiction concerns itself with what we might call the utopian possibilities of technology, with potential other worlds afforded by technology, but it is specifically utopia that addresses technology of the here and now – the unremarkable, ordinary, perhaps even unnoticed technologies about which, in Adorno's terms, the best things about them have been forgotten.

In this sense, utopia is characterized by complacency, because it is what persists after the end of a utopian journey – it is a place where hopes have been fulfilled, a place that is present-oriented, where the future is perceived as being, in a sense, already there. For Frederic Jameson and Herbert Marcuse, this place of fulfilled hope is "that place beyond all history"[23] or "the end of history,"[24] which in this context, also implies the end of ideological struggle. Utopia is a place where a unified *Weltbild* has already been developed, and the negotiation of individual and collective values has been largely resolved. Indeed, for Jameson, the individual is no longer significant in utopia: "The citizens of utopia are grasped as a statistical population; there are no individuals any longer, let alone any existential 'lived experience.' […] I want to argue that this effect of anonymity and of depersonalization is a very fundamental part of what utopia is and

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[22] José Esteban Muñoz, *Cruising Utopia*, (New York: New York University Press, 2019): 1.

[23] Fredric Jameson, "The Politics of Utopia," *New Left Review*, 25 (Jan/Feb 2004): 36.

[24] Herbert Marcuse, "The End of Utopia," *Five Lectures: Psychoanalysis, Politics, and Utopia*, trans. Jeremy Shapiro and Shierry Weber (Boston: Beacon, 1970): 62.

how it functions."[25] He allows that a work such as William Morris's *News from Nowhere* does not seem particularly depersonalized, but quickly dismisses this insight, suggesting that Morris's characters are perhaps perceived as less depersonalized simply because they are, "as Victorians, merely a little closer to us in time."[26] As I will argue, however, Morris's design for utopian fiction is noteworthy in its irregularity. *News from Nowhere* feels different from other utopian fiction, not because the Victorians are close to us in time, but because there is a fundamental departure from the usual pattern in the manner of its representation of utopia. Morris's utopia is situated not at the end of history, but at the ending of history. Rather than total consensus, Morris depicts the maintenance of consensus as a continuous and active process. Individuality is a notable feature of *News from Nowhere*, because Morris is interested in how individual assent of collective values is negotiated.

Of course, Jameson is probably right that the Victorian time period of *News from Nowhere* has something to do with its perspective on utopia. Matthew Beaumont suggests, for instance, that the uncertain political climate of the *fin de siècle* "marked an attempt not only to sketch the future, but also to perceive the present from the anamorphic perspective that [the discourse of utopianism] afforded." [27] But Beaumont also singles out *News from Nowhere*, noting that it is unlike other Victorian utopias. Whereas other utopias, including Edward Bellamy's *Looking Backward* to which Morris was responding directly, involve a degree of acceptance of capitalistic logic, Beaumont differentiates *News from Nowhere* as a "utopian romance [that]

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[25] Jameson, 40.

[26] Jameson, 40.

[27] Matthew Beaumont, *Utopia Ltd.: Ideologies of Social Dreaming in England 1870-1900,* (Boston: Brill, 2005): 170.

presents an ideal socialist society that explicitly repudiates or negates the empty present of capitalism."[28] Morris would probably appreciate such an assessment, as his review of *Looking Backward* pointedly criticizes Bellamy for complying with the capitalist and imperialist logic of labor as a necessary evil.[29] In *News from Nowhere*, capitalist and imperialist logic is something to be grappled with, not something to be subsumed.

Bellamy's utopia is one that embraces the position of the end of history. The social structure of the utopia in *Looking Backward* is presented as inevitable, as "a process of industrial evolution which could not have terminated otherwise."[30] The process by which general assent to the values of the structure is developed is not grounded in struggle but rather framed as a matter of course. Acceptance and consensus is, for Bellamy, taken for granted as the end result of struggle: "The popular sentiment toward the great corporations and those identified with them had ceased to be one of bitterness, as they came to realize their necessity as a link, a transition phase, in the evolution of the true industrial system."[31] The language of realizing necessity reveals a complacent attitude characterized by an incuriosity about alternative possibilities. This

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[28] Beaumont, 172.

[29] "I believe that the ideal of the future does not point to the lessening of men's energy by the reduction of *labour* to a minimum, but rather to the reduction of *pain in labour* to a minimum, so small that it will cease to be a pain; a gain to humanity which can only be dreamed of till men are even more completely equal than Mr Bellamy's utopia would allow them to be, but which will most assuredly come about when men are really equal in condition."

William Morris, "Looking Backward," transcribed by Ted Crawford, *Commonweal*, Vol 5, No. 180 (22 June 1889): 194-195.

[30] Edward Bellamy, *Looking Backward 2000-1887*, ed. Matthew Beaumont (Oxford: Oxford World's Classics, 2007): 29.

[31] Bellamy, 33.

attitude is especially apparent in the interpretive framework of the utopia's inhabitants for their society's communal technologies.

In one of the novel's most memorable scenes, the narrator notices on a rainy day that "a continuous waterproof covering had been let down so as to inclose the sidewalk and turn it into a well lighted and perfectly dry corridor."[32] This covering accords with the utopia's socialist values. In the inhabitants' understanding, "the difference between the age of individualism and that of concert was well characterized by the fact that, in the nineteenth century, when it rained, the people of Boston put up three hundred thousand umbrellas over as many heads, and in the twentieth century they put up one umbrella over all the heads."[33] That they read their technologies as reflecting their collective values is not in itself indicative of a complacent attitude, but as the utopia's inhabitants say more about the covering, they reveal an unwillingness to intellectually engage with the value that the nineteenth century placed on individualism. As one character tells the visitor about "a nineteenth century painting at the Art Gallery representing a crowd of people in the rain, each holding his umbrella over himself and his wife, and giving his neighbors the drippings," she mentions that her grandfather is convinced the painting "must have been meant by the artist as a satire on his times."[34] From the grandfather's perspective, it seems that the socialist values of his world are the only conceivable values. He assumes the painting must be satire, presumably because he cannot imagine why someone might think individual umbrellas are a good idea. The value of individualism has been so weakened in Bellamy's utopia that is no longer taken seriously as a competing ideology.

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[32] Bellamy, 89.

[33] Bellamy, 89.

[34] Bellamy, 90.

Morris takes a markedly different approach to designing utopia. Though some characters speak of their world in a manner similar to the inhabitants of Bellamy's utopia, *News from Nowhere* incorporates dissenting voices. And instead of confirming the inhabitants' proclaimed values, technologies in Morris's utopia frequently undercut them. Michael Robertson distinguishes Morris from his contemporary utopian writers by arguing that Morris is the only one who "has [any] use for Marx."[35] Other socialist utopian writers, exemplified for Robertson in Bellamy, Edward Carpenter, and Charlotte Perkins Gilman, were primarily influenced by Robert Owen's and Charles Fourier's approach to social change rooted in experimental utopian communities. Such an approach conceives of utopia as "achieved through a nonviolent process of mass conversion, not violent proletarian revolution."[36] Consensus, in this context, is imagined as arising almost spontaneously, without struggle. Morris's utopia, on the other hand, emerges from a long period of turmoil in which working class revolution is met with fascist resistance from the ruling class, before political stability is finally attained with the establishment of a new working-class leadership. This historical turmoil informs the utopia's present, as ideological struggles persist and need to be managed. As I will show in the following section, the site of struggle for the inhabitants of Morris's utopia in times of peace is primarily situated in technological objects. Technology in *News from Nowhere* does not simply reflect the world's values as it does in Bellamy's. Rather, the technological objects' designs are a reservoir of intentions of makers and users, of both the past and the present. The struggle manifests in the tension between an individual user's interpretation of a technology and the myriad possible interpretations resulting from the technology's aggregation of intentions. Utopia is the genre of

[35] Michael Robertson, *The Last Utopians*, (New Jersey: Princeton University Press, 2018): 7.

[36] Robertson, 8.

technology, because the consensus that sustains utopia – whether spontaneous in Bellamy's case or through struggle in Morris's – arises from the interpretation of technological objects.

Utopian Perfection and the Illusion of Insularity

In this section, taking Morris's *News From Nowhere* as a primary case study, I delve further into the process of negotiating consensus around interpretation of technological objects and the centrality of this process to the design of utopia. In Morris's socialist utopia, the younger inhabitants are similar to Bellamy's characters, as they believe their society to be perfect and in no need of any further improvement. Though the visitor seeks to understand the society's ideology and history, he is unable to glean much from his conversations with the younger inhabitants of the utopia because they have only a cursory understanding of how or why their society came to be as it is and show little interest in societies not like their own. They are at the ending of history, where history is in the process of being forgotten, because it is deemed no longer relevant. But history is not yet at its end. The visitor is able to learn the utopia's history from the older generation, who possesses not only information about the revolution, but also a degree of understanding of the capitalist ideologies of their past. The difference between the two generations' perspectives on their world manifests clearly in their differing interpretations of technological objects.

A particularly striking scene that illuminates this difference is when Clara berates her grandfather for reading so many books from the 19th century (the visitor's and Morris's time), as the two of them interpret the usage of books in markedly different ways. Clara's grandfather approaches books as offering glimpses into alternative worlds. His readings compel him to ponder, for example, whether people back then were not "brisker and more alive, because [they

had] not wholly got rid of competition."[37, 38] But for Clara, books no longer have a function in their world, because she perceives their world as requiring no alternatives:

> Books, books! always books, grandfather! When will you understand that after all it is the world we live in which interests us; the world of which we are a part, and which we can never love too much? Look!" she said, throwing open the casement wider and showing us the white light sparkling between the black shadows of the moonlit garden, through which ran a little shiver of the summer night-wind, "look! these are our books in these days! […] As for your books, they were well enough for times when intelligent people had but little else in which they could take pleasure, and when they must needs supplement the sordid miseries of their own lives with imaginations of the lives of other people.[39]

We might say that, from Clara's perspective, books are utopian. She interprets them as formerly forward-looking correctives to the world in which they were written. They imagine a better world than the one in which their readers lived, but are no longer of value in a world that needs no improvement. Certainly, part of her argument is about appreciating their present world, but

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[37] William Morris, *News From Nowhere*, (Oxford: Oxford University Press, 2003): 129.

[38] Morris himself would probably have been more generous than Clara, as he writes in "The Worker's Share of Art":

"Nor is it only the workers who feel this misery (and I rejoice over that, at any rate). The higher or more intellectual arts suffer with the industrial ones. The artists, the aim of whose lives it is to produce beauty and interest, are deprived of the materials for their works in real life, since all around them is ugly and vulgar. They are driven into seeking their materials in the imaginations of past ages, or into giving the lie to their own sense of beauty and knowledge of it by sentimentalizing and falsifying the life which goes on around them; and so, in spite of all their talent, intellect and enthusiasm, produce little which is not contemptible when matched against the works of the non-commercial ages. Nor must we forget that whatever is produced that is worth anything is the work of men who are in rebellion against the corrupt society of to-day — rebellion sometimes open, sometimes veiled under cynicism, but by which in any case lives are wasted in a struggle too often vain, against their fellow-men, which ought to be used for the exercise of special gifts for the benefit of the world."

William Morris, "The Worker's Share of Art," transcribed by Ted Crawford, *Commonweal*, Vol 1, No. 3 (April 1885): 18.

[39] William Morris, 130.

her perspective comes with the implicit assertion that their world is already a better world, as she acknowledges the "sordid" conditions of life back in the nineteenth century. Indeed, she even asserts that their world is better than the imagined optimal conditions in the 19th century, criticizing the insularity of "the hero and heroine living happily in an island of bliss on other people's troubles"[40] characteristic of novels of the time.

Clara's incuriosity suggests that insularity may be a hallmark of utopias. As Joshua Kotin argues in *Utopias of One*, at the limit case where a utopia comprises of only a single person, it cannot fail because it is "isolated and isolating, singular and specific."[41] Clara's utopia is merely larger than that of the hero and heroine she criticizes. She likewise lives on "an island of bliss" (the island of Great Britain) "on other people's troubles" (other countries, "especially the northern parts of America […] are now very backward in all that makes life pleasant").[42] Indeed, utopian fiction is often set in spatially[43] and/or temporally[44] isolated places. Thomas More's Utopia is an island of unknown location; Samuel Butler's Erewhon lies beyond a range of mountains; Edward Bulwer-Lytton's Vril-ya live deep underground; Margaret Cavendish's Blazing World is situated outside our planet entirely; Edward Bellamy's narrator in *Looking*

[40] Morris, 130

[41] Joshua Kotin, *Utopias of One*, (Princeton: Princeton University Press, 2018): 2.

[42] Morris, 85.

[43] Thomas More's Utopia is an island of unknown location; Samuel Butler's Erewhon lies beyond the mountains and can only be reached through a hidden path; Edward Bulwer-Lytton's Vril-ya live deep underground; Margaret Cavendish's Blazing World lies outside of our planet entirely and connects to it exclusively at the poles.

[44] Edward Bellamy's *Looking Backward: 2000-1887* is set in future-Boston; Irene Clyde's *Beatrice the Sixteenth* is set in a time before Christ.

Backward: 2000-1887 is set in Boston over 100 years in the future; Irene Clyde's *Beatrice the Sixteenth* is set in a time before Christ.

Such insulation is never absolute, however, since these utopias are all to some extent porous. Though we might think of the visitors stumbling upon these utopias as exceptional circumstances, threats to the utopias' autonomies are often hinted at in the utopias themselves. International warfare is a fundamental concern in *Beatrice the Sixteenth* and *The Blazing World*, for example, and More's and Bulwer-Lytton's visitors, upon returning to their worlds, reflect on the possibility of introducing missionaries to the utopias. Physical insulation is rarely absolute, but it has the effect of buttressing or even reifying ideological insulation. Indeed, Morris's utopia is only minimally insular from a geographic standpoint. It is an island of known location where travel is permitted, though uncommon. The inhabitants are not particularly perturbed by the visitor's sudden appearance in their country. Yet, they know very little of other countries, beyond the fact that many still subscribe to the ideologies of nineteenth-century England. The temporal separation of the utopia is subsumed under geographical separation, with other countries standing in for the visitor's own time. The inhabitants – especially the younger ones – are vaguely aware of other countries and their own country's past, but they are simply uninterested in learning more. They believe so staunchly in the perfection of their society that they are oblivious to the inconsistencies in their ideology that deeper consideration of their relation to other countries would illuminate. Concepts such as imperialism and trade are, for example, so strange[45] to them that they do not recognize the extent to which their current comfort

[45] Morris, 81.

The appetite of the World-Market grew with what it fed on: the countries within the ring of 'civilisation' (that is, organized misery) were glutted with the abortions of the market and force and fraud were used unsparingly to 'open up' countries *outside* that pale. This process of

is built on the imperialism and trade of the nineteenth century. Their technologies, however, betray their interpretive biases.

They decry the "World-Market" of the nineteenth century that "[forced] cheap production"[46] and sought to "open up"[47] countries that were "outside that pale" by "forc[ing[wares on the natives which they did not want, and [taking] their natural products in 'exchange.'"[48] And yet, they presumably continue to benefit from this period of imperialism. The visitor notices, for example, silver in the designs of certain technological objects. He notes the decorative silver on "a little silver bugle horn" and a "belt being of filigree silver-work."[49] Though Great Britain had some modest silver mines,[50] the vast majority of British silver by the seventeenth century had come from the Spanish colonies.[51] Then in the eighteenth century, as

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'opening up' is a strange one to those who have read the professions of the men of that period and do not understand their practice; and perhaps shows us at its worst the great vice of the nineteenth century, the use of hypocrisy and cant to evade the responsibility of vicarious ferocity. […] Then some bold, unprincipled, ignorant adventurer was found (no difficult task in the days of competition), and he was bribed to 'create a market' by breaking up whatever traditional society there might be in the doomed country, and by destroying whatever leisure or pleasure he found there. He forced wares on the natives which they did not want, and took their natural products in 'exchange,' as this form of robbery was called, and thereby he 'created new wants,' to supply which (that is, to be allowed to live by their new masters) the hapless, helpless people had to sell themselves into the slavery of hopeless toil so that they might have something wherewith to purchase the nullities of 'civilisation.'

[46] Morris, 81.

[47] Morris, 81.

[48] Morris, 82.

[49] Morris, 11.

[50] Martin Allen, "Silver Production and the Money Supply in England and Wales, 1860—c.1500," *The Economic History Review*, Vol 64, No. 1 (February 2011): 114-131.

[51] Stanley J. Stein and Barbara H. Stein, *Silver, Trade, and War: Spain and America in the Making of Early Modern Europe* (Baltimore: Johns Hopkins University Press, 2000): 62.

Great Britain switched from silver to the gold standard, this silver was exported to China in exchange for Chinese goods.[52] Sure enough, there is evidence of such goods still being in use in Morris's utopia, as the visitor notes in the Hall of the Bloomsbury Market "here and there a piece of old oriental ware."[53] Of course, the fact that there are only a few porcelain pieces and that they are old is in keeping with the cessation of trade with China as well as the inhabitants' noncommercial attitude toward wares. But as they continue to enjoy the use of old porcelain that likely arrived in England as part of the global (and colonial) silver trade of the sixteenth to nineteenth centuries, they continue to benefit from the ideologies and systems they disavow.

As much as the inhabitants of Morris's utopia believe their society to have moved beyond their own history, they continue to turn to the old logics to make sense of their present. While they are disdainful of the way colonial trade "forced wares on the natives which they did not want, and took their natural products in 'exchange,'"[54] they continue to think of other countries as inferior places that they can exploit and/or improve. For example, while they may not attempt to reproduce their social structures elsewhere by "forc[ing] wares" on people, they quite literally reproduce other populations in their own image: "we have helped to populate other countries – where we were wanted and were called for."[55] And when the visitor asks whether there is any

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[52] Dennis O. Flynn and Arturo Giráldez, "Cycles of Silver: Global Economic Unity through the Mid-Eighteenth Century," *Journal of World History*, Vol 13, No 2 (Fall 2002): 391-427.

[53] Morris, 87.

"The glass, crockery, and plate were very beautiful to my eyes, used to the study of mediæval art; but a nineteenth-century club-haunter would, I daresay, have found them rough and lacking in finish; the crockery being lead-glazed pot-ware, though beautifully ornamented; the only porcelain being here and there a piece of old oriental ware."

[54] Morris, 82.

[55] Morris, 63.

pervasive fear that they may experience a "work-famine" once it is explained to him that "all the work that [they] do is an exercise of the mind and body more or less pleasant to be done: so that instead of avoiding work everybody seeks it: and, since people have got defter in doing the work generation after generation, it has become so easy to do, that it seems as if there were less done, though probably more is produced,"[56] he is told that they can always look to their former colonies for more work, "especially America – that part of it, above all, which was the United States – are now and will be for a long while a great resource to [them]" because they have become "such horrible places to live in."[57] They preserve an exploitative logic when it comes to their relations to their former colonies.

The utopia's inhabitants' obliviousness to the tension between their contempt for imperial activity of the past and their current attitudes toward other countries marks their complacency and their implicit assent (despite their explicit disavowal) of their past actions through the design of their current world – marks, in other words, their perception of their world as a utopia even as their world generates possibilities for dissent. In his seminal *Metamorphoses of Science Fiction*, Darko Suvin defines utopian fiction as "the verbal construction of a particular quasi-human community where sociopolitical institutions, norms, and individual relationships are organized according to a more perfect principle than in the author's community, this construction being based on estrangement arising out of an alternative historical hypothesis."[58] Though Suvin's work is now cited primarily for its concepts of "cognitive estrangement" (an adaptation of

[56] Morris, 84.

[57] Morris, 85.

[58] Darko Suvin, *Metamorphoses of Science Fiction*, (New Haven and London: Yale University Press, 1979): 49.

Brecht's *Verfremdungseffekt* for Science Fiction, situating estrangement as a "formal framework of the genre"[59]) and the "novum" (the formal logic of a fictional world, that can explain the strange "in concrete, even if imaginary, terms, that is, in terms of the specific time, place, agents, and cosmic and social totality of each tale"[60]), his reflection on the relation between utopia and perfection is key to my understanding of utopia as technology's genre.

Returning to Suvin's definition, "more perfect" stands out as an unusual formulation as, from the Latin *perficere*,[61] perfection, in its strongest sense, implies completion. To call something perfect presupposes that there is an ideal version of such a thing, though what constitutes the ideal is not necessarily a universal judgment. As Spinoza put it, "*each* person called a thing perfect which seemed to agree with the universal idea which *he* had formed of that thing."[62] The philosophical tradition has long been suspicious of perfection. Spinoza himself goes on to criticize the application of the concept to nature's objects, because "nature does nothing for the sake of an end, for that eternal and infinite Being whom we call God or Nature acts by the same necessity by which He exists; […] Since, therefore, He exists for no end, He acts for no end."[63] More recent books in the philosophy and history of technology, such as Michael J. Sandel's *The Case Against Perfection: Ethics in the Age of Genetic Engineering*

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[59] Suvin, 7.

[60] Suvin, 80.

[61] perficiō (fēcī, fectum); finish, complete; perform; accomplish

Pocket Oxford Latin Dictionary: Latin-English. 3rd ed. (2005), s.v. "perficiō."

[62] Benedictus de Spinoza, *Ethics*, (Hertfordshire: Wordsworth Editions Limited, 2001): 161.

[63] Spinoza, 162.

(2007) and Michael J. Hyde's *Perfection: Coming to Terms with Being Human* (2010), are similarly critical of the idea of perfectibility. From an ethical perspective, they believe, there is something dangerous in the drive to perfection, precisely because there is no universal standard of perfection.

Perfection is localized. Anyone describing something as perfect has a circumscribed audience in mind. Sandel, for example, writes that "[e]veryone would welcome gene therapy to alleviate muscular dystrophy and to reverse the debilitating muscle loss that comes with old age,"[64] that the eradication of muscular dystrophy and muscle loss would be universally ideal. But, in the case of sports, "as the role of enhancement increases, our admiration for the achievement fades. Or rather, our admiration for the achievement shifts from the player to his pharmacist."[65] He believes, in other words, that genetic engineering can create an ideal world when restricted to rehabilitative use, but when expanded would create a non-ideal world in which he would no longer enjoy watching sports. Of course, one could argue with Sandel's conception of sports as being a celebration of individual talent. After all, athletes' teams already include coaches and doctors, so why should we simply assume that adding a pharmacist would be fundamentally different? But the fact that he is inadvertently speaking to a limited audience of likeminded sports fans reveals an important facet of perfection, which is that it is not only not a universal judgment (in the sense that everyone would individually come to the same conclusion) but also not a generalizable one (in which one could assume that because enough people agree,

[64] Michael J. Sandel, *The Case Against Perfection: Ethics in the Age of Genetic Engineering*, (Cambridge: The Belknap Press of Harvard University Press, 2007): 10.

[65] Sandel, 25.

everyone must agree). Whether something is deemed perfect tells us more about the people who deem it so than about the thing itself.

The "more" in "more perfect" is not about the degree of perfection so much as it is about the degree of consensus around what is considered perfect. From the visitor's perspective in *News from Nowhere*, there is widespread agreement with socialist principles in the utopia – far more than in the visitor's own time, when socialist ideology was largely limited to members of the Socialist League. This does not mean, however, that utopias have absolute consensus. Indeed, Clara's grandfather's espousal of nineteenth-century ideology is evidence of some degree of dissent. But he is in a very small minority, and in fact does little more than occasionally grumble. At the end of the day, he lives by and presumably benefits from the structure of that society. As Clara chides him in response to one of his grumblings, "a harmless lazy old man like you would either have pretty nearly starved, or have had to pay soldiers and people to take the folks' victuals and clothes and houses away from them by force."[66] We might even say that the novel's ascription of the dissenting voice to an old man points to it being a weakening position. Because of his relative proximity to the past, he voices a sympathy with the past that will eventually dissipate, because younger (that is, future) generations do not share it. A "utopia of one" is the limiting case, where there is absolute consensus, and that is why it is the only utopia that, according to Kotin, does not fail. But the eventual failure of utopias is inextricably related to the conditions under which utopias exist. Even in what we might describe as, expanding Suvin's formulation, "less perfect" utopias such as Morris's, there is an impulse toward widespread acceptance if not necessarily active assent of values.

[66] Morris, 130.

The drawing of ideological boundaries defines the space of utopia. In a history of English utopian communities in the first half of the twentieth century, Dennis Hardy notes that most utopian communities were short-lived because they were "a hotbed of contradictions."[67] In one example, he describes how even slight ideological differences led larger communities to split into a number of smaller, more specifically focused communities. One of the communities that split from the Boy Scouts, for example, was the Kindred of the Kibbo Kift in 1920, which was a pacifist camping, hiking, and handicraft community. Eventually, a group split from the Kindred to form the Woodcraft Folk (1925), a community for leftist youth education that still exists today with 25000 members. Whereas the Kibbo Kift became more and more focused in its aims (specifically promoting the theory of social credit), shrinking the circumscribed space of consensus and consequently losing members, the Woodcraft Folk expanded its intended audience by collaborating with other communities and neighboring ideological movements. There is no inherent perfection in utopias. Rather, its perceived possibility is a result of being on the inside of a circumscribed ideological space.

Though perfection is often thought of as a characteristic of utopia, what is more interesting than its implication of an ideal is the fact that it involves a binary sort of evaluation. Something is either perfect or it is not. It is a judgment of value in which there is no nuance. Disavowing history is an effective way of delimiting the conditions that inform such a judgment. Whether it is the Kibbo Kift and Woodcraft Folk seeking to distinguish their missions from those of their parent communities or the inhabitants of Morris's utopia repudiating imperialism, the

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[67] Dennis Hardy, *Utopian England: Community Experiments 1900-1945*, (London: Routledge, 2000): 224.

perception of perfection involves a cultivated blindness. I say cultivated, because even though the blindness is not always willful, it requires maintenance. The inhabitants of Morris's utopia actively maintain an interpretive distinction between the imperialist policies of their country's past and their current relations to other countries. Because they have judged imperialism to be unethical, they must then find ways of reframing the persistence of their imperialist logic. By transvaluing labor and casting work as something only they enjoy doing, they reframe the exploitation of another country's resources as something more like scavenging. Logically, however, asserting that they should be able to take work from others because others do not find pleasure in it is not so different from colonists who cheated Native Americans in trade by understating the value of gold.[68] In both cases, value is relative to an interpretive framework – a constructed framework that is then used to justify the value of the thing it interprets.

Such transvaluation is especially evident in the interpretation of whether a technological object works. Something imperfect according to one measure may be considered perfect according to another. Indeed, for Władysław Tatarkiewicz, "[t]he chief paradox of perfection – that imperfection is perfect" is epitomized in technology:

> experience teaches technologists that in some cases imperfection in the structure of matter contributes to the perfection of technology. Irregularity in conductor crystals (i.e. an imperfection in them) is requisite for producing particularly important (in a sense, perfect) technical devices. Semiconductor technology indeed depends on the introduction of contaminants – hence the imperfection – into semiconductor crystals. The solution to the paradox lies in a distinction between two concepts of perfection: that of regularity, and that of utility. Imperfection is perfect in technology, in the sense that irregularity is useful."[69]

[68] M. Kat Anderson, *Tending the wild*, (Oakland: University of California Press, 2005): 90.

[69] Władysław Tatarkiewicz, "Paradoxes of Perfection," trans C. Kasparek, *Dialectics and Humanism: The Polish Philosophical Quarterly* Vol 7, No. 1 (Winter 1980): 8.

Tatarkiewicz's examples, taken from materials engineering, elucidate the inherence of value judgments when it comes to determining whether a technology works. The imperfection of conductor crystals and semiconductor technology is perfect because the technologies' actions as a result of these irregularities are desired actions. Typically used in electronic and computing devices, they are perfect technologies in a world that values such uses. In Butler's *Erewhon*, for example, where any technology more recent than 271 years old is legally banned, there would be no utility in these materials. That technology is a key example of imperfect perfection for Tatarkiewicz speaks to how its desirability is measured according to subjective criteria.

The technologies we use and ways in which we use them indicate the worlds we want. Even in utopias that eschew modern technology, such as in *Erewhon* or *News from Nowhere*, much of the narration is devoted to descriptions of and/or characters' attitudes toward technology. In Samuel Butler's *Erewhon* (1872), the narrator from England finds himself in a place that has banned the use of modern technology, including gunpowder. They have knowledge of modern machinery, as evidenced by the displays of advanced weaponry in their museum,[70] but they do not use them. Believing that machines evolve in a manner similar to evolution in organic organisms and will ultimately gain sentience and wage war on people,

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[70] Samuel Butler, *Erewhon.* (London: Penguin Books, 1970): 80.

"The wonder was that they allowed any mechanical appliances to remain in the kingdom, neither do I believe that they would have done so, had not the Professors of Inconsistency and Evasion made a stand against the carrying of the new principles to their legitimate conclusions. These Professors, moreover, insisted that during the struggle the anti-machinists should use every known improvement in the art of war, and several new weapons, offensive and defensive, were invented, while it was in progress. I was surprised at there remaining so many mechanical specimens as are seen in the museums, and at students having rediscovered their past uses so completely; for at the time of the revolution the victors wrecked all the more complicated machines, and burned all treatises on mechanics, and all engineers' workshops—thus, so they thought, cutting the mischief out root and branch, at an incalculable cost of blood and treasure."

Erewhonians are more concerned with the potential threat of being attacked by their own machinery than they are with being attacked by other people. For them, it is eschewing modern technology that makes for a better world. Their laws are predicated on not merely eliminating threatening actions by machinery but also the potential for machinery to perform threatening actions. In other words, it is not solely about what technology can or cannot do, but rather about the potential consequences of having such technologies – about the kinds of values our choices in technologies affirm.

In *News from Nowhere*, which depicts a society that privileges ease of living and aesthetic pleasure, older technologies are valued over modern ones because they are easier to maintain and deemed more aesthetically pleasing. As the visitor travels up the river with his local guide Dick, for example, he remarks that he would have expected more advanced lock technology, to which Dick responds:

> I believe, as a matter of fact, that some time ago (I can't give you a date) some elaborate machinery was used for the locks, though people did not go so far as try to make the water run up hill. However, it was troublesome, I suppose, and the simple hatches, and the gates, with a big counterpoising beam, were found to answer every purpose, and were easily mended when wanted with material always to hand: so here they are, as you see.
>
> Besides, said Dick, this kind of lock is pretty, as you can see; and I can't help thinking that your machine-lock, winding up like a watch, would have been ugly and would have spoiled the look of the river: and that is surely reason enough for keeping such locks as these.[71]

Dick's explanation highlights the difference between what his society prioritizes and what the visitor assumes a society would prioritize. That a machine-lock's appearance is a consideration at all, when the visitor was inquiring about the efficiency of upstream travel technology, has to do with the high value Dick's society places on beauty and aesthetic pleasure. Perhaps even more

[71] Morris, 146.

interesting in his judgment of what is preferable in lock design is his characterization of their older style of locks as "easily mended." The perfect lock, in Dick's world, is not one that does not break, but one that is easily mended when broken. This is a clear example of imperfect perfection. The community in general agrees that it is preferable to have less elaborate technology with easier maintenance than to have more efficient technology that is "troublesome." Part of what makes Dick's world a utopia is that its technology's users appreciate a wide range of the technology's possible behaviors. Their intentions, in other words, are fulfilled most of the time.

Technology is a fundamental aspect of intentional world building, whether through its presence or through its conspicuous absence as in *Erewhon*. This is as true for the real world as it is for fictional worlds, as consensus of values are frequently built around interpretations of technological objects. Christina Kiaer argues in *Imagine No Possessions* that Russian Constructivist artists sought, through their objects, to imagine a future ideal world. The objects they designed embodied Aleksandr Rodchenko's tenet "our things in our hands must be equals, comrades,"[72] and aimed to make "the material object […] an active almost animate participant in social life."[73] Charles Fourier, in the nineteenth century, endeavored to give structure to his utopian ideology in the form of a building organized for a self-contained community, which he termed a phalanstère. These are not, however, deterministic aspirations. Rather, they are persuasive ones – they are working toward increasing consensus. The Constructivists were creating objects for mass circulation. Fourier saw the phalanstère as a kind of recruitment tool.

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[72] Christina Kiaer, *Imagine No Possessions: The Socialist Objects of Russian Constructivism*, (Cambridge: The MIT Press, 2005): 1.

[73] Kiaer, 1.

As he explains: "*when they finally see*, that in the relations between members of a series,[74] we experience no deceit, and that the people, so false and so boorish in civilization, become bursting with truth and politeness in the series, they will become averse to this household, these cities, this civilization, that are the objects of their current affection; *they will want* to associate with one another in a series and live in its building"[75] (translation and italics mine). His language is predictive, but not prescriptive. "They will want to" join, because they will have been persuaded once they observe the interactions between members of the community. Technological objects in utopias are sites around which to develop a unified *Weltbild*.

To be clear, when I say that utopia is technology's genre, I do not mean that technological objects create utopias – according, say, to a logic of technological determinism. Rather, they imply utopias and we should read them as such: read them for their intentional projects, values, and scope. Utopias are intentional by design and if they survive, they survive by consensus. We should also, as I have been arguing, read technologies for the implicit sacrifices required by their design and shaped by the values of their makers and users. Like insularity, sacrifice is a formal feature of utopian fiction. A utopia maintains consensus by delimiting its interpretive boundaries, and the well-being of those who fall outside the scope is, in some instances, quite literally sacrificed. Ursula K. Le Guin's "The Ones Who Walk Away From

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[74] The phalanstère is organized into a number of series, which are sub-groups made up of like-minded individuals.

[75] Charles Fourier, *L'harmonie universelle et le phalanstère: exposés par Fourier (Tome 1er)*, (Paris: Librairie Phalanstérienne, 1840): 2

"lorsqu'ils verront enfin que dans les relations des Séries, on n'éprove jamais aucune fourberie, et que le people, si faux et si rustre en Civilisation, deviant éclatant de vérité et de politesse dans les Séries, ils prendront en aversion ce ménage, ces villes, cette Civilisation, qui sont les objects de leur affection present; ils voudront s'associer dans une Phalange de Séries et habiter son édifice."

Omelas," for example, is a utopia where all are happy except for one child who lives in abjection. Citizens are aware of this, but because their happiness depends on the abjection of the child, they choose to accept the child's suffering as a necessary cost. The genre of utopia is about imperfect perfection, though most scholarship on utopia tends to focus predominantly on the aspect of perfection. In this next section, I will explore the imperfect and its significance for reading technology. Having argued thus far that consensus is built around the question of whether and under what conditions a technological object is considered to work, I turn now to a discussion of the actions and people who live outside the space of consensus.

Implicit Sacrifice

It is possible for an imperfection according to one measure to result in perfection according to a different measure, as in Tatarkiewicz's example with semiconductors. The imperfection of the material's impurity makes a semiconductor ideally suited for use in electronic devices. More often, however, consensus around a technological object's utility occurs in spite of, not because of, its imperfections. Our evaluation of whether a technology works involves judgment of which imperfections are considered acceptable and which are not. This section moves away from the traditional examples of utopian fiction in the last section to take up other genres where the consensus around a technology's desired actions is a more explicit site of contestation. Such sites provide us with opportunities to examine how design sacrifices are negotiated, whether consciously or subconsciously, by both makers and users. I will begin with a brief example from Jules Verne's *From the Earth to the Moon*, in which engineers of a proto-rocket have an explicit discussion about whether they should allow a person to ride in the projectile. Verne stages the negotiation of sacrifice through argumentative and persuasive

discourse between characters with different intentions for the technology. I then turn to Joseph Conrad's *A Secret Agent*, where a seemingly unified *Weltbild* is disrupted by the bombing of the Greenwich observatory. While the sacrifices may at times affect individuals at random, they are often in line with implicit biases and are indicative of who the technology is designed for.

Verne's *From the Earth to the Moon* is a fairly technical work of science fiction, with a lot of attention to design, featuring mathematical calculations and discussion of engineering principles. In the novel, members of the Baltimore Gun-Club, bored by the inaction of the post-Civil War period, propose to design a gun that can shoot a projectile to the moon. Though safe landing on the moon is their hope, they are aware of the dangers involved in their project. Indeed, a full-blown public argument breaks out around this issue, between Barbicane, the president of the Baltimore Gun-Club and his archrival Captain Nicholl.[76] At a meeting where French adventurer Michel Arden speaks of his plans to travel to the moon in the projectile, Captain Nicholl sneaks into the gathering and challenges his and Barbicane's values in front of all the meeting's attendees.

> "You are guaranteed to kill yourself, he yells, and your death, which would have been only the death of a fool, would not even have served science!"
>
> "Continue, my generous unknown, as you prognosticate in really a very agreeable fashion"
>
> "Ah! This is too much!" cried Michel Ardan's adversary, "and I do not know why I continue such a pointless discussion! Do as you please with this insane business! We shouldn't be blaming you!"
>
> "Oh! Don't be shy!"
>
> "No! It is another who will bear the responsibility of your actions!"
>
> "So who then, if you please?" demanded Michel Ardan in an imperious voice.
>
> "The ignoramus who organized this business, which is as impossible as it is ridiculous!" (translation mine)[77]

[76] Their rivalry began when Captain Nicholl designed a new shield and accused Barbicane of cowardice when the latter turned down the captain's challenge to use any projectile to try to break the shield. (Chapter 10)

[77] Jules Verne, *De la Terre à la lune*, (Paris: Librairie générale française, 2001): 177.

During his tirade, Captain Nicholl essentially accuses Barbicane, as the organizer and in a sense lead designer of the project, of being willing to sacrifice Michel Ardan's life for what amounts to an experiment. From the Captain's perspective, what is at stake really is sacrifice, not risk-taking, as he is convinced Ardan will definitely die. This verbal contest turns physical, as Barbicane, gravely insulted, ultimately challenges the Captain to a duel. But the Captain makes a reasonable point. Before Ardan's arrival from France, declaring that he would travel in the projectile, there were no concrete plans for a person to be shot to the moon. There were no plans, in other words, to sacrifice a member of the Gun-Club. It was not until a foreigner arrived that they entertained the idea of attempting to send someone to the moon. The sacrificial astronaut comes from the outside.

Eventually, Barbicane and the Captain agree to travel alongside Ardan in the projectile, but the conditions of their sacrifice are different. Ardan convinces them, essentially, to forego their duel and instead join him in the projectile.

> "Our friend Barbicane believes that his projectile will go straight to the moon."
> "Yes, certainly," replied the president.
> "And our friend Nicholl is persuaded that it will fall back down to earth."
> "I am certain of it," cried the captain.
> "Good!" resumes Michel Ardan. "I do not pretend to try to make you agree; but I simply say to you: Come with me, and see for yourselves whether we stay on the projected path."[78] (translation mine)

Both agree promptly and enthusiastically to this proposition, though for different reasons. This may seem logically inconsistent with their previous positions, as Barbicane could have volunteered himself at any time prior to Arden's arrival, and the Captain was staunchly against

[78] Verne, 191.

the entire project. But, a crucial element has changed because of the duel. The chances of dying in a duel are perhaps not that different from the chances of dying in the projectile. Arden's proposition does not save their lives so much as redirect the manner of potential death. The cost of their sacrifice is lower than the cost of Arden's, as they are, if the chances of surviving a duel are perfectly random, 50% already dead. The negotiation of their sacrifice following their agreement to duel illuminates the way determination of acceptable risk in technological action varies according to the people who are likely to be affected.

Conrad's *The Secret Agent* provides a more developed *Weltbild* within which to understand the negotiation of sacrifice. Whereas Verne's scene stages the negotiation of consensus as verbal and potential physical contest, the Greenwich bombing in Conrad is quite explicitly about destabilizing the perception of a unified worldview – about the fragility of apparent consensus and the work it takes to maintain it. The bomb that goes off in Greenwich Park and kills its carrier is the central action of the novel. When the bombing is first mentioned, we encounter it through characters who read about it in the newspaper. Eventually, as the novel unfolds, we piece together the sequence of events from the perspectives of various characters. The narrative structure constructs a community around the event, weaving an extensive web of responsibility. We eventually learn that the person who is killed in the explosion is neuroatypical character Stevie, brother-in-law of Verloc, the titular character. We also learn that while the incident appeared at first to be an accident of technology, it is a result of collective intention.

The novel begins with a convoluted bomb plot. Verloc, a spy for an unnamed country who is selected for a false flag operation, is instructed during a meeting at the embassy to bomb the Greenwich Observatory and make it look like an attack by anarchists. But there is also a gun in the story. Verloc had begun his spy career with a failed mission to steal "the design of the

improved breech-block of [France's] new field-gun,"[79] falling for a honey trap because he was unable to properly assess the French people with whom he came into contact. In his own words, he had developed "a fatal infatuation for an unworthy [woman]."[80] In the bomb plot, however, Verloc will not be required to read others. Unlike the outward-oriented gun designs, which were about gathering intelligence on the French as an outsider, the bomb plot is designed to destabilize the apparently unified *Weltbild* from within.

The reasons for selecting the observatory as location and the bomb as technology are carefully laid out by the First Secretary, Vladimir. After listing other possible actions and the reasons they will not be registered as anarchist and must therefore be rejected (assassination is too conventional, targeting a church would invite religious associations to the action, going for a restaurant or theater might be interpreted as "the exasperations of a hungry man" or "an act of social revenge"[81]), Vladimir presents his "philosophy of bomb throwing":

> The sensibilities of the class you are attacking are soon blunted. Property seems to them an indestructible thing. You can't count upon their emotions either of pity or fear for very long. A bomb outrage to have any influence on public opinion now must go beyond the intention of vengeance or terrorism. It must be purely destructive. It must be that, and only that, beyond the faintest suspicion of any other object. […] But how to get that appallingly absurd notion into the heads of the middle classes so that there should be no mistake? That's the question. By directing your blows as something outside the ordinary passions of humanity is the answer. […] They believe that in some mysterious way science is at the source of their material prosperity. They do. And the absurd ferocity of such a demonstration will affect them more profoundly than the mangling of a whole street – or theatre – full of their own kind.[82]

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[79] Joseph Conrad, *The Secret Agent*, ed. Michael Newton, (London: Penguin Group, 2007): 16.

[80] Conrad, 17.

[81] Conrad, 26.

[82] Conrad, 26.

Vladimir's conception of an anarchist attack is one where there is no clear intentionality. It must be "beyond the intention of vengeance or terrorism," which are actions with clear and typically attributable motivations. A "purely destructive" action is an action that is seemingly without reason. His analysis engages the citizens' understandings of their own world; he does not attempt to create or introduce any new understandings. Indeed, he diagnoses "the sensibilities" of those who will experience the attack and predicts how they will respond. The way to evacuate the bombing of any potential rational explanations is to attack their values upon which rationality is constructed. Vladimir points to their collective belief in the value of science as a defining feature of their apparently unified *Weltbild*: "Any imbecile that has got an income believes in that. He does not know why, but he believes [science] matters somehow."[83] An attack on science would be deeply affecting, because their perfect consensus of its value would make it difficult for them to conceive of any motivation for such an attack. The bomb neither introduces new values nor contests existing values – it merely amplifies existing unquestioned values.

Indeed, in the aftermath of the bombing, the characters work hard to repair the fractures of their worldview predicted by Vladimir. They hang on to their trust in science – its methods, its perceived objectivity, its perceived reliability – as they turn a blind eye toward their own complicity and lay the blame solely on Stevie. When the anarchist Ossipon asks his comrade the Professor, who made the bomb that was detonated at Greenwich Park, what he thinks might have happened, the Professor briefly considers but ultimately dismisses how the bomb's design might have contributed to its untimely detonation:

> The detonator was connected with the screw top of the can. It was ingenious – a combination of time and shock. I explained the system to [Verloc]. It was a think tube of tin enclosing a –" Ossipon's attention had wandered. "What do you think has happened?" he interrupted. "Can't tell. Screwed the top on tight, which would

[83] Conrad, 26.

> make the connection, and then forgot the time. It was set for twenty minutes. On the other hand, the time contact being made, a sharp shock would bring about the explosion at once. He either ran the time too close, or simply let the thing fall. The contact was made all right – that's clear to me at any rate. The systems worked perfectly. And yet you would think that a common fool in a hurry would be much more likely to forget to make the contact altogether. I was worrying myself about that sort of failure mostly. But there are more kinds of fools than one can guard against. You can't expect a detonator to be absolutely fool-proof."[84]

The Professor absolves himself of any wrongdoing, putting the accident down to user error. Indeed, he takes the detonation as proof that "the systems worked perfectly." His idea of a perfect bomb accepts a high degree of volatility. Walking too slowly would result in the timed detonation going off before the carrier has time to get away, and any "sharp shock" such as a fall would cause the bomb to detonate immediately. He asserts, additionally, that "you can't expect a detonator to be absolutely fool-proof." The considerable potential for loss of the user's life is simply a feature of bombs and an acceptable cost for the Professor. Of course, one would not expect a bomb maker such as the Professor, who always carries a bomb on his person, in case he should ever desire to kill himself and anyone in his vicinity, to be overly concerned with a bomb's potential to harm its user. The bomb that killed Stevie did not malfunction – it was volatile because the Professor likes volatility. But in his interpretation, the bomb simply did what a bomb is expected to do. His trust in the technology underpins his interpretive framework and allows him to absolve himself of his responsibility as the bomb's designer.

The constable who investigates the scene is another example, though more indirect and fleeting, of someone who reveals himself to be complicit in Stevie's death. He determines that Stevie must have stumbled over a tree root, adding "I stumbled once myself, and pitched on my

[84] Conrad, 60.

head too, while running up. Them roots do stick out all about the place."[85] Knowing first-hand the potential dangers of those tree roots, the constable never considers that something might be done about the roots. This is not to suggest that he should be directly responsible for tree root safety, but to note that he is aware of and accepts that this root is a hazard to people. The constable who, unlike the Professor, has no direct insight into the bomb plot, also stands in somewhat for the rest of the citizens. We see in this brief scene hints of a collective *Weltbild*, where concern for others is not valued, and the lack of concern is hidden under the guise of something like logic. The constable's interpretation of the event does not implicate him, because it is delimited to the immediate cause and effect of the action: if a person holding a bomb that detonates on impact trips over a tree root, the bomb will go off and kill the person. The boundaries of interpretation are sufficiently narrow that Stevie is the only person left to blame.

Of course, the person most responsible for Stevie's death is Verloc. Though he had not planned for Stevie to die, Verloc was always prepared to sacrifice him:

> Mr. Verloc never meant Stevie to perish with such abrupt violence. He did not mean him to perish at all. Stevie dead was a much greater nuisance than ever he had been when alive […] But Stevie had stumbled within five minutes of being left to himself. And Mr. Verloc was shaken morally to pieces. He had foreseen everything but that. He had foreseen Stevie distracted and lost – sought for – found in some police station or provincial workhouse in the end. He had foreseen Stevie arrested, and was not afraid, because Mr. Verloc had a great opinion of Stevie's loyalty, which had been carefully indoctrinated with the necessity of silence in the course of many walks. […] That his wife should hit upon the precaution of sewing the boy's address inside his overcoat was the last thing Mr. Verloc would have thought of.[86]

[85] Conrad, 71.

[86] Conrad, 182.

He may not have actively "meant" for Stevie to die, but also did not actively plan for Stevie to live. The eventualities Verloc had foreseen had to do with preventing himself from being implicated in the bombing. His concern with Stevie potentially being arrested was a concern with whether Stevie could be trusted to remain loyal, not about whether someone with Stevie's "excitable"[87] disposition, of which Verloc's wife often reminded him, would suffer. The reason he regrets Stevie's death is that the latter had identificatory information in his overcoat that will eventually lead investigators to Verloc. He even acknowledges to himself later on that "[t]he eventuality he had not foreseen had appalled him as a humane man and a fond husband. From every other point of view it was rather advantageous. Nothing can equal the everlasting discretion of death."[88] The design of his plan, in other words, not only left space for Stevie to die, but succeeds better with Stevie dead.

His attitude of disposability toward Stevie is even embedded in the design of the bomb. We know from the bomb that the Professor always carries on his person that the type of detonator on the can-shaped bomb Stevie was carrying, which goes off immediately if the can is dropped, is not the only kind of detonator the Professor is capable of making. For the Professor's personal bomb, there is a twenty second lag between the time the detonator is pressed and the time the bomb goes off.[89] The can-shaped bomb was made at Verloc's insistence on having "something that could be carried openly in the hand." This design, which requires a steady hand and precise timing, is perhaps the worst possible weapon for someone like Stevie, who is easily

[87] Conrad, 48.

[88] Conrad, 186-187.

[89] Conrad, 53.

"excitable"[90] and has a tendency to be "easily diverted from the straight path of duty by the attractions of stray cats and dogs […]; by the comedies of the streets […]; or by the dramas of fallen horses."[91] The bomb was made according to Verloc's specifications, to serve Verloc's plans. Verloc would likely affirm the Professor's assertion that the bomb's systems "worked perfectly" – but it was not made for Stevie.

Though Stevie's death looks like an accident from the outside, it is in many ways an extension of how he lived in a world with a *Weltbild* that excluded him. The disregard Verloc, the anarchists, and even strangers have for Stevie is evident long before the bombing. They recognize his difference and exclude him on the basis of it. Indeed, Ossipon, an ex-medical student, even diagnoses Stevie's drawings as "typical of this form of degeneracy [… clarifying] that's what he may be called scientifically. Very good type too, altogether, of that sort of degenerate."[92] The bomb amplified the effects of this collective disregard and made explicit the implicit sacrifice the people of London had been making all along.

If we consider the events that inspired *The Secret Agent*, we could read it as a novel about how unexpected technological action can reveal the fragility of a unified *Weltbild*. The historical Greenwich bombing (1894) was of significant international interest because the centralization of time at the Greenwich Meridian (1884) had made London a focal point of global capitalism and imperial politics.[93] While other countries were attempting to quash the rise of anarchism,

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[90] Conrad 48.

[91] Conrad, 7.

[92] Conrad, 37.

[93] "The nineteenth century acknowledged London as the centre of things; the creation in 1884 of the Greenwich Meridian, marked as a brass rail inlaid in concrete, crowned as the prime meridian – zero degrees longitude – whence all the continents spread out east and west."

England had been taking in those countries' anarchists as political refugees. As Daniel Mulry notes, this meant that "[i]nstead of domestic dissent among disenfranchised labor, plots abroad were fomented and equipped in England."[94] After the bombing, England became less tolerant of anarchist movements, and this shift was noted by other countries. In an article in *The Times*, a quote from the *République Française* accuses England of "hav[ing] two pairs of spectacles, one for looking at their own affairs, and the other at those of their neighbors." England could afford to be sympathetic when it received no threat. As the article goes on to suggest:

> So long as the Anarchists were content with operating in France, Spain and Belgium, they were free to "demonstrate" on Tower-hill, and to form their abominable plots at the Autonomie Club, but when it was seen in London that people ran the risk of having their own fingers burnt at the game, and that bombs exploded at Greenwich as well as at the *café Terminus* and the *Licéo*, a different tone is taken …. Everybody will benefit by this tardy awakening of conscience, and we cannot but congratulate ourselves on it. M. Bourdin [the bomber] was therefore well-inspired, if not for himself, at least for others, in stumbling with his bottle. [95]

In this article's interpretation of events, the bombing of Greenwich forced England to look inward (as Vladimir suggests it would in his "philosophy of bomb throwing"), though the language of "tardy awakening of consciousness" implies that England is not actively examining its values so much as it is flipping a switch and changing its values. The bombing essentially revealed to the rest of the world how the positions on which England was once unwilling to compromise were in fact easily displaced. Nevertheless, for the writer of *The Times*, this is a

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Roy Porter, *London, a social history*, (Cambridge: Harvard University Press, 1995): 85.

[94] David Mulry, *Joseph Conrad Among the Anarchists*, (London: Palgrave Macmillan, 2016): 2.

[95] Cited in Mulry, 3.

welcome revelation, as it prompted England to embrace what the writer sees as the correct values. The cost of this awakening is a life, and the writer thanks the bomber for his sacrifice.

Does It Work?

A final story can serve as an aid to rethink a well-known moment in the history of warfare as a negotiation of implicit sacrifice. In an 1891 interview with a reporter for the *Indianapolis Journal*, Richard Gatling recalled the circumstances that inspired the design of his eponymous gun. It was 1861, and he had been a resident of Indianapolis for over a decade, though he had grown up in North Carolina. The Civil War had just started, and he would frequently visit the Union Depot, where he observed troops preparing to leave for battle as well as the dead returning from the front. "One day," as he tells it, "I saw eighteen boxes with bodies in them. Upon making inquiry I found that only three or four of these had been killed by bullets; that the remainder of the eighteen had died in hospitals from disease." This statistic prompted him to reason that, if the adoption of machinery in farming[96] resulted in fewer people being required to work for the same amount of work completed, why could the same not be done for war? "Why not shoot by machinery – have one man do the work of one hundred, and have the other ninety-nine remain at home?"[97]

We may, of course, be skeptical of the self-proclaimed humanitarian's intentions. After all, there is nothing inherent in the Gatling gun's design that requires the size of armies to be

[96] He already held many patents in farm technology at this point. The newspaper article mentions his drill design, which was very successful. That farm machinery would be his analogy is perhaps not surprising, given this is where his first successful inventions were used.

[97] "Inventor of the Gatling. His Wheat Drill That Led the Way for Advance in Agricultural Implements. Suggestions That Came to Him Regarding Improvements in Gunnery – A Boy's Grief on Learning Ericsson Was Ahead of Him." *The Indiana Journal*. April 26, 1891.

reduced by 99%. It gives rise to that possibility but leaves it as a question of interpretation for users. What is embedded in the gun's design, however, is a capacity for harm that is 100 times that of a non-machine gun. Indeed, by the time of the interview, Gatling guns had already been deployed by the British against the Zulu army during the Anglo-Zulu war[98] and the Egyptian army during the Anglo Egyptian war[99] to devastating effects. Still, the utopian orientation that Gatling gives his gun's origin story is not in itself unexpected. Designers and users alike are concerned not only with a technology's potential actions, but also with possible effects of its potential actions. In this way, technologies professedly aim to solve problems, improve circumstances, or otherwise contribute to building a better world. But better for whom?

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[98] John Ellis, *The Social History of the Machine Gun*, (Baltimore: Johns Hopkins University Press, 1986): 84

London Standard article from 4 July, 1879, on Battle of Ulundi, cited in Ellis:

"When all was over and we counted the dead, there lay, within a radius of five hundred yards, 473 Zulus. They lay in groups, in some places, of fourteen to thirty dead, mowed down by the fire of the Gatlings, which tells upon them more than the fire of the rifles" – Ellis p. 84 – *London Standard*

[99] John Ellis, *The Social History of the Machine Gun*, (Baltimore: Johns Hopkins University Press, 1986): 84.

Army and Nave Gazette article from 13 September, 1882, on Battle of Tel El Kebir, cited in Ellis:

Battle of Tel El Kebir (13 September 1882) "The naval machine gun battery, consisting of six Gatlings… reached the position assigned to it… Having received orders to advance they came within easy reach of the Tel-el-Kebir earthworks… The order "action-front" was given and taken up joyously by every gun's crew. Round whisked the Gatlings, r-r-r-r-r-rum, r-r-r-r-r-rum, r-r-r-r-r-rum! that the hellish note the soldiers so much detests in action, not for what it has done, so much, as for what it could do, rattled out. The report of the machine guns as they rattle away rings out clearly in the morning air. The parapets are swept. The embrasures are literally plugged with bullets. The flashes cease to come from them. With a cheer the blue-jackets double over the dam, and dash over the parapet, only just in time to find their enemy in full retreat. That machine gun was too much for them. Skulking under the parapet they found a few poor devils, too frightened to retire, yet willing enough to stab a Christian, if helpless and wounded."

Later in the interview, Gatling goes into more detail about the world he expects his invention will make possible. "I believed that if war was made more terrible it would have a tendency to keep peace among the nations of the earth," he explains, "This country pays annually one hundred and thirty millions in [military] pensions. Half that amount expended in Gatling guns would keep the peace of the world. If there should come a war between nations, each so equipped, there would be but one battle; that would be sufficient." The idea that more powerful weaponry might prevent warfare is not in itself unusual, even though it is incongruous with the Gatling gun's own legacy. It is the logic underpinning a number of foreign policies. Policies of armed neutrality, for instance, conceive of neutrality in international conflicts as a luxury attainable only with the backing of a powerful military. Another example might be the Cold War, when the arms race between the United States and the Soviet Union ultimately did not lead to a nuclear war. But the purported benefits of such an approach are insular. Switzerland's neutrality during World War II involved financial collaboration with the Nazi Party[100] and the Cold War involved a number of proxy wars. Whether or not such peace is sustainable is a contested question, but in such instances, there is still an immediate cost to this kind of "non-violence" – the cost just happens to be displaced onto others.

Indeed, as Gatling offers evidence for the imminence of his vision, he reveals that his gun's utopia is a circumscribed world that improves conditions for some, but not all. He presents his gun as a weapon of peace, but it is a kind of peace that resides entirely within a logic of oppression. In one of his guns' most successful missions, as he tells it, its mere presence was enough to effectively intimidate people into submission: "Governor Hendricks once laughingly

[100] Christian Leitz, *Nazi Germany and Neutral Europe During the Second World War* (Manchester: Manchester University Press, 2000): 17.

told me of an occurrence in this State where a mob assembled at Hammond, on account of some railroad trouble. When the machine gun got there it was not necessary to fire it. One sight and it created such a panic that the mob stood not upon the order of its going but went at once, scattering wildly in all the directions." The "railroad trouble" Gatling refers to is likely part of the railroad strikes of 1873-1874, when workers in several states went on strike in response to wage cuts as high as 20% at the start of the financial Panic of 1873. An oblique mention in Thomas A. Hendricks's biography to "an extensive railroad strike at Logansport" in 1874, which was "handled with much skill by the Executive, and quiet was restored without any serious outbreak having occurred,"[101] hints at the kind of Gatling Gun intervention in which its maker took pride. But even the effect Gatling proclaims is temporally and geographically insular. Wages across the country continued to decrease during the recession and an estimated 100 lives were ultimately lost when continued wage cuts and increasing worker unrest culminated in the Great Railroad Strike of 1877.[102] Ultimately, it is not surprising that Gatling's idea of a better world would be one in which the very threat of physical violence in a conflict forestalls physical violence itself. The design of the Gatling Gun is entirely about optimizing the potential for violent action. It thereby embeds a view of the world in which violence is endemic to conflict resolution. Its *Weltbild* is a violent one.

In real as in fictional worlds, technology provides insight into the people who design and use it. When we think of a technological object as working or not working, we are not thinking

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[101] John Walker Holcombe and Hubert Marshall Skinner, *Life and Public Services of Thomas A. Hendricks (with selected speeches and writings)* (Indianapolis: Carlon and Hollenbeck, 1886): 310.

[102] Herbert G. Gutman, "Trouble on the Railroads in 1873-1874: Prelude to the 1877 Crisis," *Labor History,* 2.2: 215-235.

of two different modes of action, but rather whether the actions produce results that we deem desirable. Moving into the present-day, artificial intelligence software that purports to eliminate bias is an example that has gained a lot of attention in recent years. Ruha Benjamin writes about how data technologies perpetuate racial inequity. For example, "predictive policing software will always be more likely to direct police to [particular neighborhoods], because the data that this software is drawing from reflect ongoing surveillance priorities that target predominantly Black neighborhoods."[103] Similarly, facial recognition software encodes racial bias because "[t]he ethnoracial makeup of the software design team, the test photo databases, and the larger population of users influence the algorithms' capacity for recognition."[104] We might also be reminded of the AI recruiting tool Amazon developed and subsequently scrapped because it favored male candidates – a bias it had developed precisely because the company's existing hiring data led the software to teach itself that men were preferable as employees.

The question "do these technologies work?" is therefore a complex one, because the difference between the world we have and the world we want when it comes to racial equality is considerable. Amazon's recruiting tool works in the sense that it does exactly what it was designed to do. The AI software learn from available data and make predictions consistent with the data. But colloquially we would say that these technologies do not work, because we mean that they do not bring about the effects that we want. The AI does not succeed at creating the world its designers and users hoped they would; the software's outputs are as biased as their inputs. Such technologies aim to replace subjectivity with objectivity, but in effect are merely

[103] Ruha Benjamin, *Race After Technology: Tools for the New Jim Code* (Cambridge: Polity Press, 2019): 81.

[104] Benjamin, 110.

designed to replace individual subjectivity with collective subjectivity. In Amazon's case, the software's outputs simply represent the collective biases of the people that make up Amazon rather than an individual's biases. While we may have a more immediate understanding of how a technological object embeds collective subjectivity when it comes to AI, because the process of AI is precisely collection, any technological object can be read for the shared biases of its world. Technologies do not change values – they perpetuate them. The question of whether a technology is considered to work, then, is a litmus test not for the world we want or the world we have, but for the world we are willing to accept.

CHAPTER 3

GUN NO. 3:
CONCEALED INTENTIONALITY, ELEGANT TECHNOLOGY, INVISIBLE WORKERS

In the early days of the Republic, the United States tacitly embraced a policy of technological piracy. Patent law nominally required that the "invention, art or discovery hath not, to the best of [the patent seeker's] knowledge or belief, been known or used either in this or any foreign country."[1] But in practice, obtaining a patent was contingent on no more than filling out the paperwork. Moreover, by 1793, Europeans were prohibited from seeking patents in the US, if they already held a patent for the same invention in Europe, which made space for Americans to hold patents for European inventions even though such practice was not officially sanctioned.[2] Around the same time, England was toughening industrial counterespionage measures. Between 1695 and 1799, the English government passed more than ten laws restricting exportation of machinery and emigration of skilled workers.[3]

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[1] United States, *The Public Statutes at Large of the United States of America* (Charle C. Little and James Brown, 1850), 38.

An Act to extend the privilege of obtaining patents for useful discoveries and inventions, to certain persons therein mentioned, and to enlarge and define the penalties for violating the rights of patentees (April 17, 1800)

[2] Doron S Ben-Atar, *Trade Secrets: Intellectual Piracy and the Origins of American Industrial Power* (Yale University Press, 2008), 169.

[3] Ben-Atar, *Trade Secrets*, 12-13.

It is in this secretive climate that two British men arrived at the consulate in Philadelphia on the second week of November 1787, with a bizarre story about a botched smuggling effort. Cotton merchant Thomas Edemsor and calico printer Henry Royle had roused the ire of the Pennsylvania Society for the Encouragement of Manufactures and the Useful Arts, a strong proponent of technological piracy as a means of advancing American manufacturing, by returning smuggled textile machines back to England. They were seeking help from the consulate because they feared for their lives. How they came to be in possession of these machines, however, is where the story gets curious. The machines were smuggled out of England by a father and son planning to set up a cotton manufactory in the US. The son sailed to Philadelphia first, and the father and machines were to follow on a later ship. The father bought the machines, disassembled them, and managed to successfully smuggle them out of Liverpool in casks labelled "Queen's Ware" (a brand of earthenware). But the father soon fell ill and died. When the son received the machine parts in Philadelphia, he had no idea how to reassemble the machines. He ended up selling the parts to another Englishman, Joseph Hague, who was able to somewhat assemble and operate them. But, as he was not using them correctly, he became "very apprehensive of the Expense"[4] and eventually sold them to Royle, who in turn sold them to Edemsor, who ultimately shipped the machines back to England – the decision that ended up provoking the Society.[5]

[4] The consul Edemsor and Royle speak to is Phineas Bond, and their story is recounted in Bond's dispatch, cited in Joanne Loewe Neel's *Phineas Bond: A Study in Anglo-American Relations, 1786-1812*

[5] Joanne Loewe Neel, *Phineas Bond: A Study in Anglo-American Relations, 1786-1812*, vol. 4 (University of Pennsylvania Press, 2016), 55-58.

As recorded by the consul,[6] this is a story of American vulgarity – Americans regarding stolen English property as their right to keep, even as they, with their unsophisticated manufacturing, had no idea how to use the machines. When we consider that none of the Englishmen involved in the incident knew how to properly assemble and operate the machinery either, however, another story emerges. English law explicitly prohibited the exportation of machinery because, to varying degrees, a technology's design can be reverse engineered from the technological object itself. The object contains within it the knowledge required to make it and to operate it. Yet, in this story, no one could figure out how to access the knowledge implicit in the object. This illegibility is part of the technology's design. Thus, even as textile machinery took work away from hand spinners, for example, it required a new kind of worker. Alfred P. Wadsworth and Julia de Lacy Mann note in their seminal history of the cotton trade that newspaper advertisements frequently included factory owners looking for people who could put machinery together, operate machinery, or otherwise understand how machinery works.[7] Many

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[6] Neel, *Phineas Bond*, 4, 52.

"Bond opened the first British consulate in Philadelphia during the autumn of 1787, after the Continental Congress had fully recognized him as consul for all the middle Atlantic states."

[7] "The advertisement columns of the Lancashire newspapers of the later seventies – almost our only evidence of the spread of these factories and the boom in machine-making that they caused – contain many offers of mills on streams, in which "at little expense" carding and twisting machinery may be set up, and of eligible sites for water wheels. A manager is sought "for a small Factory in the Country," and a man 'that understands the Spinning and taking care of Spinning Jennies" would be welcomed. A country manufacturer looks for a man who understands the making of these machines, while in the equipment of a bankrupt Manchester manufacturer, looks for a man who understands the making of these machines, while in the equipment of a bankrupt Manchester manufacturer, with its jennies "near finished," and its stock of "materials for making more" we see how common it was for machines to be made as they long continued to be made, on the manufacturer's premises. Specialised machine makers also appear. A Manchester tinplate worker announces the excellencies of his tin rollers for jennies, and a firm of Stockport joiners and cabinet makers explains that it constructs "all sorts of Spinning Machines… from 60

resident aliens in the US were also recorded in State Department records as having "learned their trades from Crompton, Arkwright, and Hargreaves,[8] and promising to share their know-how with their American apprentices."[9]

Historical accounts of technological inventions rarely center these types of skilled workers. They are often mentioned in the context of migration, because of the challenges they posed for the protection of trade secrets, but are peripheral to the stories of technological objects *per se*. The history of cotton-spinning machinery, for example, is typically told as a story of the travails and triumphs of inventor-businessmen such as the above-mentioned Samuel Crompton, Richard Arkwright, and James Hargreaves, as well as a story of workers (including spinners, colliers, and weavers) who blamed machinery for job losses and wage cuts and consequently launched guerilla attacks on carding engines and spinning jennies.[10] But when a historian writes that the number of factories using Arkwright's technology increased from twenty to one hundred and fifty between 1780 and 1790 (once the latter's patent was repealed),[11] this necessarily means that the number of people who understood how to assemble, maintain, and/or use Arkwright's

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Spindles to fifteen Score each. Likewise Machines for Winding Cotton Warp of an entire new Plan."

A.P. Wadsworth and J. De Lacy Mann, *The Cotton Trade and Industrial Lancashire 1600-1780* (Manchester University Press, 1931), 493.

[8] Samuel Crompton, Richard Arkwright, and James Hargreaves, inventors in the spinning industry.

[9] Ben-Atar, *Trade Secrets*, 189.

[10] Wadsworth and De Lacy Mann, *The Cotton Trade*, 375.

[11] R. Guest, *A Compendious History of the Cotton-manufacture: With a Disproval of the Claim of Sir Richard Arkwright to the Invention of Its Ingenious Machinery* (J. Pratt, 1823), 31.

machines increased exponentially as well. Labor is not so much reduced as displaced, and the idea that machines are labor saving devices goes hand in hand with the invisibility of certain types of labor. When Henry Clay calls for American textile machinery to be of "equal elegance" to its British counterparts, claiming that while "others may prefer the cloths of Leeds or of London, […] give me those of Humphreysville,"[12] he is speaking from the perspective of a consumer of textile products. The machinery appears to him to be elegant, because he does not consider what happens between acquiring the machinery and selling the textiles.

In the previous chapters, I approached technologies as objects with legible design. The first chapter argued that we can discern in a technological object a plurality of embedded designer intentions, and relatedly that irregular actions are nevertheless intentional from a perspective of design because they are an inevitable consequence of direct intentions. In the second chapter, I turned to the shared quality of user intentions in determining which of the many actions allowed for in a technology's design may be considered normative. By reading an object's design, I suggested, we can reconceptualize the way we think about technological responsibility. Of course, as the story of the botched cotton machinery smuggling evinces, a technological object's design can sometimes be difficult to read. But the perceived illegibility of the technology can be itself part of its design. Preventing a technology from being easily read is a counterespionage measure, on individual, industrial, and national scales. The appearance of the technological object often conceals the manner of its function. What does this mean for our ability to read design? What are we to make of a technology's appearance – its aesthetic design –

[12] Daniel Mallory, *The Life and Speeches of the Hon. Henry Clay, in two Volumes: Compiled and edited by Daniel Mallory. I* (Bixby, 1844), 197.

relative to its functional design? While I focused in previous chapters on reading technological objects for their parts and possible actions, an object's appearance is also a part of its design.

This chapter explores the concealment of design in modern technology as a facet of capitalism. It seeks to identify and investigate both those who have the knowledge to decipher it and its associated aesthetic of elegance. In doing this, I extend the work of the previous chapters along three axes. 1) While the first chapter dealt primarily with the relation between technological objects and designers and the second chapter focused on the relation between technological objects and users, this chapter turns to the position of operator. If the designer's purview is what a technology can do and the user's is what a technology should do, the operator's is what a technology does. As primarily readers of technology with only minimal input when it comes to design, operators occupy an arguably less privileged position than either designer or user, despite their exceptional technological literacy. Though they have an exclusive type of knowledge, their labor is also necessarily circumscribed by the technology. 2) Along the axis of intentionality, the first chapter explored the embedded intentionality in design and the second chapter examined the collective intentionality informing design. This chapter in turn delves into what I call obscured intentionality, which describes the effect of embedded intentions that may be largely illegible to non-expert readers. We might think of the aerosol can, for example, which can functionally be used as a bomb but does not look the way we expect a bomb to look. 3) From a narratological perspective, the first chapter meditated on the narrative position of technology as something resembling character and the second chapter developed an account of the ideal worlds implied by a technology's design. In this chapter, I take up the technological aesthetic of elegance and what it elucidates about the relation between technological objects and

characters, offering a literary alternative to posthumanist readings of this relation, which typically center on questions of embodiment, materiality, speciation, and/or mediation.

In the first half of this chapter, I will examine the aesthetic of elegance using a variety of texts, ranging from science to interior design to literature, in order to build an understanding of elegance as an aesthetic of concealment. The perceived simplicity of an elegant theory, object, or style is a kind of illegibility – they are, to the uninitiated, largely irreplicable and indecipherable. In the second half, I turn to a reading of skilled workers in Ralph Ellison's *Invisible Man*, who are able to read the concealed design of technology, but who as a corollary occupy concealed positions and are, in a sense, themselves invisible. This chapter asks, essentially, why our technologies look the way they do and what attention to their appearances can tell us. What is the designer's investment in concealment? What about the user's? What is the relation between labor and aesthetics? Why elegance?

The Aesthetic of Elegance

Before turning to technological elegance specifically, I want to develop a more rigorous understanding of what kind of aesthetic category elegance is and its particular relation to the categories of labor and concealment. If we begin by consulting the OED, elegance is widely associated with "simplicity" and "tastefulness." Such an understanding, however, only loosely correlates with the way the term is typically used. The simplicity of elegance is not simplicity tout court. Rather, it is simplicity with a perceptible implication of complexity, or complexity repackaged as simple in appearance. Take, for example, perhaps the most famous formula of the twentieth century: Albert Einstein's $E = mc^2$. Energy equals mass times the speed of light squared. This formula from special relativity expresses equivalence between mass and energy.

That is to say that mass and energy are in some sense interchangeable, which from a commonsensical perspective would seem to be a ludicrous statement. This equation, which encapsulates the Theory of Special Relativity, is simple enough; it involves only two variables and a constant.[13] But none of us would imagine we can extrapolate a comprehensive understanding of special relativity, or even grasp what it means for mass and energy to be equivalent, by learning the equation. The equation is elegant because of how much it contains in so little, because it allows for substantial excision of labor. It makes it possible for college students to apply the formula to solve problems, without having to redo all the work Einstein did, without even having to fully understand all that work.

Tastefulness is perhaps closer to how we tend to use elegance, because it entails a kind of measuredness, a withholding of abundance, but it similarly neglects the amount of work that is obscured in the things we consider elegant. We might think, for example, of a black dress

[13] c, the speed of light, is constant at 299792458 km/s.

accessorized with just a few strings of pearls, as seen in Coco Chanel's drawing for Vogue[14] and on Audrey Hepburn in *Breakfast at Tiffany's*, for instance, as a tasteful formula for elegant dress. It is an elegant formula, to the extent that it, like $E = mc^2$, can be applied relatively easily and is comprised of only a few components. Indeed, Vogue predicted in 1926 that the little black dress would become "a sort of uniform for all women of taste."[15] When Chanel first conceived of her design, however, it was considered avant-garde, with its drop-waist silhouette, its short skirt, and especially its black color, which at the time was a color still primarily associated with

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Image Intentionally Left Out

Figure 3.1: Little Black Dress

Coco Chanel, "The Little Black Dress," (Vogue, 1926).

Image Intentionally Left Out

Figure 3.2: Breakfast at Tiffany's

Floriane Reynaud, "L'histoire de la petite robe noire Givenchy d'Audrey Hepburn dans "Breakfast at Tiffany's"," *Vogue* (Cinéma), September 13, 2020.

[15] Emmanuelle Dirix, *Dressing the Decades: Twentieth-Century Vintage Style* (Yale University Press, 2016), 62.

mourning.[16] She allegedly told Paul Morand that "those reds, those greens, those electric blues [made fashionable by her contemporary Paul Poiret[17]] made me feel ill. […] I imposed black; it's still going strong today, for black wipes out everything else around."[18] The little black dress today is considered effortlessly stylish, an unostentatious and timeless wardrobe item for semi-formal events. Black is now seen as a basic, with colors being conceived of as additive elements

[16] Sonia A Bedikian, "The Death of Mourning: From Victorian Crepe to the Little Black Dress," *OMEGA-Journal of Death and Dying* 57, no. 1 (2008): 35-52.

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Figure 3.3: Les Robes de Paul Poiret

Paul Poiret and Paul Iribe, *Les robes de Paul Poiret* (Société Générale d'Impression, 1908). https://collections.artsmia.org/art/76880/plate-from-les-robes-de-paul-poiret-paul-poiret

[18] Justine Picardie and Cassandra Harwood, *Coco Chanel: The Legend and the Life* (Harper Collins, 2010), 92-93.

to a wardrobe. A Vogue article from September 2020, for example, declared lemon yellow to be the shade of the season, and encouraged readers to add "a cheery pop of color"[19] to their fall outfits. For Chanel, however, black was not a measured withholding of color, but rather a forceful rejection of the abundance of color. She recalls the inception of the dress we now think of as effortless as an effortful process – a process of imposing black on a world of color, emphatically pushing back against conventions of fashion. Ultimately, what simplicity and tastefulness fail to capture about elegance is the work involved in obscuring its inherent complexity and/or abundance.

Elegance is an aesthetic concept with relevance for a wide range of fields, from science to architecture to fashion. Each has its own nuances, when it comes to defining what exactly elegance means in the field, and elegance is potentially a unique aesthetic in this respect. While science has long been concerned with the aesthetic evaluations of its work in general, writings on scientific beauty tend to derive their understandings of beauty from Kant, the way most aesthetic reflections on beauty do (see, for example, James W. McAllister's *Beauty and Revolution in Science* or the ongoing debates over whether Kantian aesthetics are compatible with mathematics.)[20] Work on scientific elegance, however, seeks to differentiate itself from other forms of elegance. Indeed, biologist Ian Glynn, for example, opens *Elegance in Science: The*

[19] Madeline Fass, "How to Squeeze This 2020 Color Trend Into Your Fall Wardrobe," *Vogue* (Trends), September 6, 2020. https://www.vogue.com/slideshow/fall-2020-color-trend-lemon-yellow.

[20] J.W. McAllister, *Beauty and Revolution in Science* (Cornell University Press, 1999).

Angela Breitenbach, "Beauty in Proofs: Kant on Aesthetics in Mathematics," *European Journal of Philosophy* 23, no. 4 (2015): 955-977.

Beauty of Simplicity,[21] by proclaiming "[t]he dictionary definitions of elegant – graceful, tasteful, of refined luxury – are useless here."[22] Though his dismissive attitude toward the dictionary is not entirely warranted, ("simplicity," the term he wants to use as evinced in his title, is certainly present in dictionary definitions,) his impulse to claim a unique understanding of elegance for his field is not unusual in scholarship on this category. Along the same lines, Patrik Schumacher, in an article for a special issue on elegance in *Architectural Design*,[23] proposes "a new theory of elegance in contemporary architecture" and insists emphatically that elegance in contemporary architecture is not about simplicity but "instead thrives on complexity, and achieves a visual reduction of an underlying complexity that is thereby sublated rather than eliminated."[24] Like Glynn, Schumacher deliberately misreads elegance, to an extent. As I previously noted with the example of $E = mc^2$, the simplicity of elegance always implies complexity. Yet, neither Glynn nor Schumacher is wrong in stating that there is something distinct in each field's understanding of the aesthetic. An elegant formula certainly looks different from an elegant building, and both look different from the little black dress.

To an extent, both critics' insistence on the uniqueness of their field's understanding of elegance may be marshaled to preemptively guard against an attempt to subsume their usage of the term under the category of metaphor. That would not be an unwarranted concern, as Kay Young makes just that argument in her interdisciplinary article "The Aesthetics of Elegance and

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[21] Ian Glynn, *Elegance in Science: The Beauty of Simplicity* (Oxford University Press, 2010).

[22] Glynn, *Elegance in Science*, 1.

[23] *Elegance*, vol. 77, ed. Ali Rahim and Hina Jamelle (John Wiley & Sons, January/Feburary 2007).

[24] Patrik Schumacher, "Arguing for Elegance," *Architectural design* 77, no. 1 (2007): 28-37.

Extravagance in Science and Art."[25] Noting, as I have, that critical interest in elegance transcends disciplinary distinctions, Young seeks to explain this phenomenon by suggesting that "[to] imagine as a physicist the underlying elegance of the universe […] invites humans to experience physical reality in metaphor as a means of holding those aesthetic ideas in mind."[26] She goes on to argue that "to experience Fred Astaire and Audrey Hepburn on film makes possible both an imagining of human elegance and, I want to suggest, an imagining of the scientific idea of the aesthetic of elegance – as its objective correlative. That we have aesthetic knowledge of human elegance helps make possible imagining the idea of the universe's elegance."[27] Young adapts T.S. Eliot's idea of the objective correlative, the idea that "a set of objects, a situation, a chain of events which shall be the formula of that particular emotion; such that when the external facts, which must terminate in sensory experience, are given, the emotion is immediately evoked," [28] to suggest that an understanding of elegance in science is something that is evoked by aesthetic objects. The correlative is never quite accurate, however; Glynn, for example, states that he would want to use the phrase "elegant economy" to elucidate scientific elegance, "but that phrase has been appropriated by Mrs. Gaskell to describe the style of life in

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[25] Kay Young, "The Aesthetics of Elegance and Extravagance in Science and Art," *Narrative* 19, no. 2 (May 2011).

[26] Young, "The Aesthetics of Elegance," 150.

[27] Young, "The Aesthetics of Elegance," 150.

[28] T.S. Eliot, "Hamlet," *Selected Prose of T.S. Eliot*, ed. Frank Kermode (Farrar, Straus and Giroux, 1975): 45-49.

Cranford [29]– which is not what I have in mind."[30] I imagine he would not find Audrey Hepburn or Fred Astaire to be any more fitting.

Of course, Young is right that we intuit similarities between the elegance of aesthetic objects and other kinds of objects. But unlike emotion in Eliot's usage of the objective correlative, elegance necessarily entails evaluation. Different fields have different measures for what constitutes elegance. The similarities are not evoked through metaphor but rather located in elegance's operating logic. The aesthetic of elegance, as I suggested at the start of this section, is an aesthetic of obscured labor. The question of determining what constitutes elegance, however, is a little more complicated. What aspects are obscured and how much is obscured varies considerably between fields, because the objects of each field are themselves so different. There is not much that is commutable, for example, between simplifying a mathematical proof and overriding visible signs of fatigue while dancing. But there is continuity in what factors into

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[29] "For instance, the inhabitants of Cranford kept early hours, and clattered home in their pattens, under the guidance of a lantern-bearer, about nine o'clock at night; and the whole town was abed and asleep by half-past ten. Moreover, it was considered "vulgar" (a tremendous word in Cranford) to give anything expensive, in the way of eatable or drinkable, at the evening entertainments. Wafer bread-and-butter and sponge-biscuits were all that the Honourable Mrs Jamieson gave; and she was sister-in-law to the late Earl of Glenmire, although she did practise such "elegant economy."

"Elegant economy!" How naturally one falls back into the phraseology of Cranford! There, economy was always "elegant," and money-spending always "vulgar and ostentatious"; a sort of sour-grapeism which made us very peaceful and satisfied."

Elizabeth Gaskell, *Novels and Tales: Cranford and other tales* (Smith, Elder, 1873), 3.

The "elegant economy" of Cranford is simultaneously about concealing abundance, as in the case of Mrs. Jamieson who, as the sister-in-law of an earl, is quite wealthy but does not display her wealth, and about concealing lack, as is the case for all the other inhabitants of Cranford. Mrs. Jamieson's measuredness makes it possible for the other inhabitants to emulate her "elegant economy," to conceal the fact that they cannot afford anything more extravagant. The overall effect is to facilitate the neighborly relations in a community with such disparity of wealth.

[30] Glynn, *Elegance in Science*, 1.

consideration when it comes to what and how much to obscure. Broadly speaking, elegance promotes a degree of ease on the reception end (ex: the little black dress uniform), but is also protective of the designer end (ex: protection of intellectual property, trade secrets, etc.). In other words, elegant objects are a particular balance of legibility and illegibility, reflecting a particular compromise of costs and benefits.

To illustrate the complexities of this dynamic, I will examine two vastly different examples of elegance. The first is Edith Wharton and Ogden Codman Jr.'s decorating manual *The Decoration of Houses*. In it, they criticize the division of labor between architecture and decorating in the early twentieth century, and advocate instead for "house-decoration as a branch of architecture"[31]:

> The upholsterer cannot be expected to have the preliminary training necessary for architectural work, and it is inevitable that in his hands form should be sacrificed to color and composition to detail. In his ignorance of legitimate means of producing certain effects, he is driven to all manner of expedients, the result of which is a piling up of heterogeneous ornament, a multiplication of incongruous effects; and lacking, as he does, a definite first conception, his work becomes so involved that it seems impossible for him to make an end.
>
> The confusion resulting from these unscientific methods has reflected itself in the lay mind, and house-decoration has come to be regarded as a black art by those who have seen their rooms subjected to the manipulations of the modern upholsterer. Now, in the hands of decorators who understand the fundamental principles of their art, the surest effects are produced, not at the expense of simplicity and common sense, but by observing the requirements of both. These requirements are identical with those regulating domestic architecture, the chief end in both cases being the suitable accommodation of the inmates of the house.[32]

At first glance, it would appear that for Wharton and Codman, increased legibility leads to more elegant design. After all, they are critical of the way "house-decoration has come to be regarded

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[31] Edith Wharton and Ogden Codman Jr., *The Decoration of Houses* (Mineola, New York: Dover Publications, Inc., 2015), xvi.

[32] Wharton and Codman, *The Decoration of Houses*, xvi.

as a black art" for lay people – critical of its illegibility. Indeed, they go on to write that those who participate in the division of labor between architects and decorators are "often aware that they are regarded by their clients as the possessors of some strange craft like black magic or astrology. This fatalistic attitude has complicated the simple and intelligible process of house-furnishing, and has produced much of the discomfort which causes so many rooms to be shunned by everybody in the house."[33] The problem with the unintelligibility of modern decoration, as they see it, lies in how it produces discomfort in those living in the house. The type of ease valued in decoration, then, is something like ease of dwelling. Wharton and Codman state the purpose of decoration as "comfort and convenience."[34] This ease is achieved by being able to appreciate a house's furnishings, by feeling as though the decorating principles are accessible.

Indeed, Wharton and Codman promote various forms of accessibility throughout the book. They take up accessibility in the form of affordability, by calling on the wealthy to take the lead in following their manual's suggested approach to decoration because, as Wharton and Codman argue, only widespread interest by the wealthy would make this new approach accessible to those of fewer means: "[I]t must be admitted that [reform in house-decoration] can originate only with those whose means permit of any experiments which their taste may suggest. […] Once the right precedent is established, it costs less to follow than to oppose it."[35] They also explain their selection of images through a lens of accessibility, choosing homes that "are accessible to the traveler"[36] (i.e.: important homes of which one might take a tour), while

[33] Wharton and Codman, *The Decoration of Houses*, 19.

[34] Wharton and Codman, *The Decoration of Houses*, 18.

[35] Wharton and Codman, *The Decoration of Houses*, xviii.

[36] Wharton and Codman, *The Decoration of Houses*, xviii.

suggesting that this has the added benefit of showing that the style of decoration that works for grand houses can be scaled down.

Nonetheless, both these claims might give us some pause. A room in a "carpenter-built cottage"[37] will never look like a room in Versailles. The high degree of legibility offered by the book, including photographs of rooms and analyses of the photographs is tempered by the non-replicability of the touted principles for most people's homes – at least until they become commonplace. Behind the logic of relying on the interest of the wealthy to make something accessible to those of less means lies a kind of "tyranny of taste," to borrow a term from Jules Lubbock,[38] in which those with less means are forced to follow the aesthetic dictates of the wealthy classes. If "it costs less to follow than to oppose it," it is accessible but perhaps not much of a choice. This is not to say that Wharton and Codman are necessarily wrong in their assessment of how affordability works, but rather to point out that their generous attitude is afforded by the tacit understanding that the knowledge they impart will essentially remain exclusive. Excessive secrecy is not necessary, because wealth presents enough of a barrier on its own.

Indeed, Wharton and Codman's generosity does not extend to the types of decorators they are criticizing. Through indictment of the upholsterer's work, which they take as an example of an unqualified decorator, they indict the entire trade. That he "cannot be expected to have the preliminary training necessary for architectural work" is not a failure of the individual but a failure of the trade. They even go on to characterize the inelegance of the upholsterer's

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[37] Wharton and Codman, *The Decoration of Houses*, xviii.

[38] Jules Lubbock, *The Tyranny of Taste: the Politics of Architecture and Design in Britain 1550-1960* (New Haven, CT: Yale University Press for the Paul Mellon Centre for British Art, 1995).

work as "inevitable." To their minds, the upholsterer is a type of operator, someone who executes a trade while being bound by it. A consequence of removing signs of the upholsterer's work, which is detectable in the "heterogenous ornament" of houses, is an erasure of the job altogether. The type of work currently done by the upholsterer, in Wharton and Codman's proposed organization of labor, would be subsumed under architecture. It is not just the upholsterer's style of decoration that would be expunged in the process of simplification. The upholstery trade would probably cease to exist, at least as it had been practiced until the time. What needs to be obscured in architectural elegance for Wharton and Codman is largely the work of what we might consider their competition – or at least, work done according to a competing principle. Thus, in answer to the question of how Wharton and Codman negotiate legibility and illegibility in their conception of elegance, we might say that they fall to one extreme, where they manage competition by obscuring the work of decorators who learned their trade as part of a division of labors almost entirely, and promote accessibility by making their own work widely legible in the form of a manual.

For a very different assessment of what constitutes elegance, I now turn briefly to Toshiba. When W. Mark Fruin undertook a study of Toshiba's Knowledge Works manufacturing sites in the 1990s to investigate why Japanese production growth was outstripping US production growth. He describes the Knowledge Works sites as "focused, yet flexible and versatile, high tech manufacturing sites that emphasize an integrated management of people, capital, and technology, and embody an abundant base of knowledge, capability, and ambition"[39] Knowledge Works optimizes the organizational relation of its workers' specialties, with employees

[39] W. Mark Fruin, *Knowledge Works: Managing Intellectual Capital at Toshiba* (New York: Oxford University Press, 1997), 3.

consciously working not as individuals but as parts of a whole. It is a simple system, in the sense that there is very little superfluity, and it is therefore extremely efficient. If, however, Fruin is correct in his assessment of this high degree of integration as the secret to Toshiba's production growth, why would Toshiba allow their manufacturing sites to be studied by an American scholar? The answer to this question may lie in the organization's non-replicability. Fruin observes that Toshiba experienced challenges when trying to internationalize their operations, because "[t]he nature of factory know-how is not contained in manuals but is found instead in practice and experience. This history is embodied in factory-specific, face-to-face relations, on-the-job training, and in people-based, site-specific knowledge."[40] It would seem that, short of moving Knowledge Works workers overseas, there would be no way to replicate such a manufacturing site. The knowledge is not in a manual and certainly not discernible in the company's products. If Wharton and Codman's balance of legibility and illegibility lies at one extreme, Toshiba's lies at the other. Whereas Wharton and Codman manage competition by obscuring the work of their competitors and making their own work legible, Toshiba does so by obscuring their own work, using an organization so integrated as to be effectively illegible.

The purpose of thinking about Wharton and Codman alongside Toshiba is to illustrate how variable assessments of elegance can be. But elegance can also, crucially, look different in appearance. As an aestheticization of invisibilized labor – or of obscured work – elegance cannot be reliably defined by a concrete set of visual characteristics the way Sianne Ngai suggests an aesthetic like cuteness can be associated with a list of "nonaesthetic properties […] – smallness,

[40] Fruin, *Knowledge Works*, 162.

compactness, formal simplicity, softness or pliancy."[41] We can, of course, think of examples of elegance and describe some of their properties. We might notice clean lines, extension, centeredness in a dancer, for example, or facial beauty, body shape, and good posture in Audrey Hepburn, or as Young would say, "her dark wide eyes and wide face framed by dark hair in contrast to her swan-like, white neck, long limbs, and thin waist."[42] But few if any of these properties would be present in an elegant mathematical proof. Young's suggestion that aesthetic qualities can have objective correlatives in the way T.S. Eliot argued emotions could, is perhaps conceivable with something like cuteness, for which one can envision a set of associated properties. To call Audrey Hepburn an objective correlative for elegance, however, would be extremely limiting and largely inaccurate, as the conditions of elegance are so variable.

Though Young's association of elegance with beauty may feel familiar, the association is conventional, not constitutional. Many commonplace examples of elegance happen also to be beautiful. In a sense, because an aspect of elegance involves ease of experience on the reception end, it is not surprising that beauty would often be incorporated as part of an elegant design. But it is not an intrinsic property of elegance. In Muriel Barbery's acclaimed *The Elegance of the Hedgehog*[43] (*L'élégance du hérisson*), the titular hedgehog is in reference to Renée Michel, the

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[41] Sianne Ngai, *Our Aesthetic Categories: Zany, Cute, Interesting* (Harvard University Press, 2012), 64

[42] Young, "The Aesthetics of Elegance," 154.

[43] Presumably a reference to Isaiah Berlin's "The Hedgehog and The Fox," in which he classifies writers as either hedgehogs, who have a unified or integrated view of the world, and foxes, who have a multitudinal view of the world, though this reference is never explicitly developed in the novel. When the hedgehog's elegance is mentioned, it is instead as an observation of how its exterior conceals a very different interior: "elle a l'élégance du hérisson : à l'extérieur, elle est bardée de piquants, une vraie forteresse, mais j'ai l'intuition qu'à l'intérieur, elle est aussi

concierge of an upper middle class apartment building. She describes herself as "a widow, short, ugly, plump, with bunions on [her] feet" (translation mine),[44] is an autodidact who has read broadly in philosophy and literature, and enjoys opera and fine cuisine. But outwardly, she presents herself as she imagines the inhabitants of the building expect a concierge to be. In one example, she explains that she has two televisions: a decoy that blares the types of shows she believes a concierge is expected to watch,[45] while she watches *Death in Venice* or a Mahler performance on a different one in a hiding place that she built for herself. She does this because of how terribly she believes society treats those who are "poor, ugly, and moreover intelligent" (translation mine).[46] She not only downplays but actively obscures what she considers to be signs

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simplement raffinée que les hérissons, qui sont des petites bêtes faussement indolentes, farouchement solitaires et terriblement élégantes."

I. Berlin, H. Hardy, and M. Ignatieff, *The Hedgehog and the Fox: An Essay on Tolstoy's View of History* 2ed. (Princeton University Press, 2013).

Muriel Barbery, *L'élégance du hérisson* (Gallimard, 2006), 122.

[44] "Je suis veuve, petite, laide, grassouillette, j'ai des oignons aux pieds"

Barbery, *L'élégance du hérisson*, 7.

[45] She mentions religious programing in particular: "Comme il est peu courant qu'une concierge s'émoustille devant *Mort à Venise* et que, de la loge, s'échappe du Mahler, je tapai dans l'épargne conjugale, si durement amassée, et acquis un autre poste que j'installai dans ma cachette. Tandis que, garante de ma clandestinité, la télévision de la loge beuglait sans que je l'entende des insanités pour cerveaux de praires, je me pâmais, les larmes aux yeux, devant les miracles de l'Art."

Barbery, *L'élégance du hérisson*, 9.

[46] "Je m'étais depuis longtemps accoutumée à la perspective d'une vie solitaire. Être pauvre, laide et, de surcroît, intelligente, condamne, dans nos sociétés, à des parcours sombres et désabusés auxquels il vaut mieux s'habituer de bonne heure. À la beauté, on pardonne tout, même la vulgarité. L'intelligence ne paraît plus une juste compensation des choses, comme un rééquilibrage que la nature offre aux moins favorisés de ses enfants, mais un jouet superfétatoire

of her intelligence, in order to conform to what society expects of her based on her appearance. As one of her friends describes her, "she does everything possible to act the role of a concierge and to appear stupid […] She has the elegance of the hedgehog" (translation mine).[47] Her elegance is in the immense complexity she conceals, and the amount of work she does to conceal it – but she is not, as the novel constantly reminds us, beautiful.

I have, until this point, not said much specifically about the elegance of technological objects. The reason for this is that there has been little scholarship in this area. We might expect the elegant aesthetic to be of interest to scholars of technology, in view of the emphasis in technological design on creating an experience of ease for users (that is, of creating objects that consumers find appealing to use). But, if we have come to associate elegance with beauty, technology does not always look beautiful. Or rather, our primary criteria of evaluation for technology does not tend to be beauty. There is one extended meditation on the relation between technology and elegance – David Gelernter's pop science book *Machine Beauty: Elegance and the Heart of Technology* – but it ends up being quite reductive precisely because of its assumption that beauty is equivalent to elegance. For Gelernter, elegance is about "divining the

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qui rehausse la valeur du joyau. La laideur, elle, est toujours déjà coupable et j'étais vouée à ce destin tragique avec d'autant plus de douleur que je n'étais point bête."

Barbery, *L'élégance du hérisson*, 33.

[47] "Et pourtant, elle s'efforce, hein, ça se voit qu'elle fait tout son possible pour jouer à la concierge et pour paraître débile. Mais moi, je l'ai déjà observée quand elle parlait à Jean Arthens, quand elle parle à Neptune dans le dos de Diane, quand elle regarde les dames de la résidence qui passent devant elle sans la saluer. Mme Michel, elle a l'élégance du hérisson : à l'extérieur, elle est bardée de piquants, une vraie forteresse, mais j'ai l'intuition qu'à l'intérieur, elle est aussi simplement raffinée que les hérissons, qui sont des petites bêtes faussement indolentes, farouchement solitaires et terriblement élégantes."

Barbery, *L'élégance du hérisson*, 122.

shape that seems inevitable, creating the 'inevitability illusion' [… which] is an art pure and simple […] When the illusion succeeds, the outcome is technology that works beautifully and *is* beautiful"[48] (italics in original.) How Gelernter means to be drawing the link between inevitability and beauty is unclear, but his impulse to emphasize beauty as the outcome evinces a solely reception-oriented understanding of technological elegance. Indeed, using the language of divination ("divining the shape"), he completely disregards the labor involved in elegant design – in fact he perpetuates the concealment of labor.

This is not to say that technology cannot be beautiful or that beauty cannot be a property of a particular object's elegance. But technological elegance, in its negotiation of inside versus outside, is more like Barbery's hedgehog. In its outward orientation, it has a simple appearance that facilitates user experience, while hidden inside (which for machinery is often literally the inside of the object) is the knowledge that not only makes it work but also makes its simple appearance possible. A microwave, for example, features buttons that allow users to determine how long they would like to heat something, as well as a button for opening the door. What it does not make explicit, however, is how the waves work. We can discern some hints, of course. A curious user might notice the mesh screen on the door and draw the conclusion that it has something to do with radiation. The wave guide (the rectangular metal piece in the microwave wall) is visible, if one looks inside. But much of what makes the microwave work (transformer, magnetron tube, capacitor) is concealed behind the control panel.[49] Indeed, if a microwave

[48] David Gelernter, *Machine Beauty: Elegance And The Heart Of Technology* (New York: Basic Books, 1998).

broke, only a fairly reckless user would attempt to repair it on their own. The extensive concealment of knowledge and labor in technological objects is characteristic of technological elegance. A particular consequence of this is that technologies require a worker whose job it is to elucidate the concealed knowledge. Depending on the technology, this job could mean doing repair work (in the case of a microwave, for example) or it might mean doing something more in line with operational work (such as IT, when they set up or troubleshoot programs or applications). In the following section, I turn to these operators: readers of design, whose jobs are

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Image Intentionally Left Out

Figure 3.4: How a Microwave Works

Image Intentionally Left Out

Figure 3.5: Microwave Instructions Manual

Notice how different the labelled parts are in a diagram of microwave mechanism versus a diagram in a user manual of the Sharp 1872 microwave.

"Sharp Carousel R-1872 Operation Manual," (USA: Sharp Corporation).

Dina Spector, "How Do Microwaves Cook Food?," *Business Insider* (2014).

a consequence of technology's concealed design, and whose work and whose selves are in turn concealed by the design's commodification of invisibility.

Invisible Workers by Design

> Wherever a workman is utterly enslaved, the parts of the building must of course be absolutely like each other; for the perfection of his execution can only be reached by exercising him in doing one thing, and giving him nothing else to do. The degree in which the workman is degraded may be thus known at a glance, by observing whether the several parts of the building are similar or not; and if, as in Greek work, all the capitals are alike, and all the mouldings are unvaried, then the degradation is complete; if, as in Egyptian or Ninevite work, though the manner of executing certain figures is always the same, the order of design is perpetually varied, the degradation less total; if, as in Gothic work, there is perpetual change both in design and in execution, the workman must have been altogether set free.
>
> - John Ruskin, *The Stones of Venice*[50]

This familiar passage from *The Stones of Venice* follows Ruskin's condemnation of the increasing mechanization of artisanal work, the "degradation of the operative into a machine."[51] It also gestures toward a criticism of capitalism, which later finds its full expression in *Unto this*

[50] John Ruskin, *The Stones of Venice*, vol. 2 (J. Wiley and sons, 1890), 172.

[51] Ruskin, *The Stones of Venice*, 2, 163.

Last as a "world-wide and everlasting form of slavery, wholesome in use, as deadly in abuse; -- the service of the rich by the poor."[52] For many critics, the above passage is important for the way it draws a connection between socio-political and aesthetic forms.[53] As some have interpreted the argument, if workers are not free, they cannot enjoy their work and thereby cannot produce beautiful works.[54] But if we take a more granular approach to this passage, if we refrain momentarily from scaling Ruskin's argument up for its ideology, we might notice that Ruskin is also encouraging us to read the other way around. We can, of course, conclude from the passage that a free worker produces a free work, but Ruskin is also demonstrating something less intuitive, which is that it is possible to read for workers in their work. By now, we are accustomed to thinking about conditions of labor (ex: sweat shops, factories, etc.), but Ruskin's reading suggests that the physical properties of a work are also indicative of the social position of the worker – that the suppression of a worker's work indicates the oppression of the worker.

Taken to its logical conclusion, this passage offers some interesting, if perhaps uncomfortable, implications for thinking about technological aesthetics and the condition of workers under capitalism. If the invisibility of the worker in their work means worker subjugation, and technological elegance both necessitates a class of operational workers and obscures their labor, then we might conclude that even if conditions of labor improved, workers would still be subjugated by our design commitment to elegance in technology. Our aesthetic

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[52] J. Ruskin, *Munera Pulveris* (New York: Charles E. Merrill & Co, 1891), 172.

[53] Aesthetic Specialists and Public Intellectuals: Ruskin, Emerson, and Contemporary Professionalism Günter Leypoldt – modern language quarterly 2007; John Blewitt ed William Morris and John Ruskin: a new road on which the world should travel Exeter UP 2019; Myth, Remembrance, and Modernity

[54] Kevin A Morrison, "Myth, Remembrance, and Modernity: From Ruskin to Benjamin via Proust," *Comparative Literature* 60, no. 2 (2008): 125-141.

preferences, in other words, belie a preference for a structure of labor organization that degrades its workers. Invisibility becomes itself commoditized. From an aesthetic perspective, then, the improvement of conditions for workers may require a rejection of elegance. Indeed, for Ruskin at least, gothic aesthetics are not at all elegant. He describes the gothic ornament as "stand[ing] out in prickly independence, and frosty fortitude, jutting into crockets, and freezing into pinnacles; here starting up into a monster, there germinating into a blossom; anon knitting itself into a branch, alternately thorny, bossy, and bristly, or writhed into every form of nervous entanglement."[55] Gothic architecture displays an abundance of work in its multitude of heterogenous and overwrought ornaments. The "perpetual change both in design and in execution," which Ruskin reads as evidence of worker freedom, is also directly evidence of worker individuality. It would be possible, to some degree, to distinguish between the work of different workers. The workers are thus, in the inelegance of the gothic aesthetic, amply and singularly visible.

On the question of visibility/invisibility and freedom/oppression, few literary texts have generated as much scholarship as Ralph Ellison's *Invisible Man*.[56] The discussion, however, has largely excluded questions of labor, perhaps because of Ellison's disavowal of Marxism later in his career. But the fact that labor is a site of contention in the novel is precisely why we should

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[55] J. Ruskin and W.S. Kennedy, *Art and Life* (J.B. Alden, 1900), 160-161.

[56] See Shelly Jarenski, "Invisibility Embraced: The Abject as a Site of Agency in Ellison's" Invisible Man," *Melus* 35.4 (2010): 85-109; Michael Hardin, "Ralph Ellison's" Invisible Man": Invisibility, Race, and Homoeroticism from Frederick Douglass to E. Lynn Harrism" *The Southern Literary Journal* 37.1 (2004): 96-120; Martha Nussbaum, "Invisibility and recognition: Sophocles' Philoctetes and Ellison's Invisible man," *Philosophy and Literature* 23, no. 2 (1999): 257-283; Todd M. Lieber, "Ralph Ellison and the Metaphor of Invisibility in Black Literary Tradition," *American Quarterly* 24.1 (1972): 86-100; Deborah Cohn, "To See or Not to See: Invisibility, Clairvoyance, and Re-Visions of History in Invisible Man and" La casa de los espíritus," *Comparative Literature Studies* 33.4 (1996): 372-395.

read for it. That Ellison is perhaps obscuring some of the intellectual labor that informs his own views makes *Invisible Man* an exemplary text for thinking through technological elegance and capitalism. The paint factory episode, in particular, uncovers the labor and laborers underlying technological elegance. I turn now to an extended reading of that scene.

When we first encounter the factory, it is through its advertisement, when the narrator (the nominal invisible man) spots "a huge electric sign announc[ing] its message through the drifting strands of fog: KEEP AMERICA PURE WITH LIBERTY PAINTS."[57] Much has been made in criticism, of course, of the association of Liberty Paints and purity. It is often read as an allegorization of "whiteness produced through the operation of marginalizing blackness,"[58] as the company specializes in the whitest of white paint,[59] and the secret to their formula is mixing in just the right amount of "dead black"[60] liquid. We may also read it as allegorizing the invisibility of the Black men who work in the factory to produce the paint. Their work is what makes the paint so white, and yet any evidence of their labor is entirely obscured in the appearance of the product. I am, however, interested more specifically in the mechanisms of this marginalization. We begin to see hints of it, even before arriving at the factory. "Keep America pure with Liberty Paints" is a simple but strange formulation. Purity, following the sign's own logic, is not

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[57] Ralph Ellison, *Invisible Man* (New York: Random House, 1952), 149.

[58] Harryette Mullen, "Optic White: Blackness and the Production of Whiteness," *Diacritics* 24, no. 2/3 (1994): 74.

[59] "It's the purest white that can be found. Nobody makes a paint any whiter. This batch right here is heading for a national monument!""

Ellison, *Invisible Man*, 153.

[60] Ellison, *Invisible Man*, 152.

achieved through purification, but through addition – not by removing colors but by obscuring the colors that make up the structure to be painted.

Moreover, this simple formula is not quite accessible to the narrator, as his visual encounter with the sign is through "drifting strands of fog." When he arrives at the factory, we learn why. The invisible man is immediately put to work, mixing black color into the white paint. Then, when he runs out of black liquid, he is told to refill it in the tank room where, he discovers when he finds it, "[t]here were seven [tanks]; each with a puzzling code stenciled on it. […] I'll pick the tank from the contents of the drip cans hanging from the spigots. But while the first five tanks contained clear liquids that smelled like turpentine, the last two both contained something black like the dope, but with different codes. So I had to make a choice. Selecting the tank with the drip can that smelled most like dope, I filled the graduate."[61] Essentially, he tries his best to read the technology of the tanks, deducing which one to use based on appearance and smell. But he soon discovers that he incorrectly chose "concentrated remover"[62] and ruined an entire batch: "The paint was not as white and glossy as before; it had a gray tinge."[63] We learn from this accident that the paint factory's white does not, in fact, cover all things, and that literal purification (through the addition of the concentrated remover) makes the white grey. In a matter of a few hours on his first day, the invisible man learns of and contributes to the invisible work involved in creating the elegant illusion of the simple equivalence of Liberty Paint and purity.

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[61] Ellison, *Invisible Man*, 153-154.

[62] Ellison, *Invisible Man*, 155.

[63] Ellison, *Invisible Man*, 154.

Following this mistake, the narrator is reassigned to work in the basement as an assistant to Lucius Brockway, a man who has until this time worked alone, though his job is essential to the functioning of the entire factory. In virtual invisibility, he operates the complex machinery that makes the paint substances and then delivers them to the workers upstairs who mix the paints. As the only person who is able to read all the factory's machines, Brockway is the quintessential operator. Before the narrator was assigned to be his assistant, Brockway managed all the machines on his own, because only he knows how to keep them running smoothly. The opacity of the machines is emphasized in the invisible man's narration. He describes Brockway "going over and turning a valve in an intricate network of pipes,"[64] and "inspect[ing] the gauges and go[ing] to another part of the room to adjust a series of valves."[65] He also describes a "strange-looking machine consisting of a huge set of gears connecting a series of drum-like rollers."[66] The invisible man's literacy is surface-level. He is able to identify certain parts of the machinery, such as valves, pipes, gauges, and gears, but he does not know how to engage with them, or even identify what the machine as a whole is designed to do.

Brockway tells the narrator that they are "the machines inside the machine,"[67] the people whose work is necessary for the machines to work. Alex Goody reads this line through the lens of posthumanism. She argues that the line "serves to highlight […] the ideology that reserves the privilege of human autonomy for the white, heterosexual, male subject, while othering

[64] Ellison, *Invisible Man*, 158.

[65] Ellison, *Invisible Man*, 161.

[66] Ellison, *Invisible Man*, 162.

[67] Ellison, *Invisible Man*, 165.

mechanistic subjectivity."[68] Though it is a familiar line of posthumanist criticism to read machinery as "produc[ing] objectified racial bodies,"[69] it is a rather simplistic reading of this particular scene. "Mechanistic subjectivity" suggests a kind of unity of machine and human, but Brockway is not continuous with the machines – the machines are dependent on him. This is not to say that he is not in a subjugated position. As the machines' operator, his work is invisible. The workers upstairs simply receive the paint and the black liquid as products. They are not privy to the work he does to maintain the machines. Indeed, he is even physically obscured in the basement.

The subjugation of the position, however, is a consequence of the factory's and the machinery's design. For the factory to work as it currently works, there needs to be a person in the basement who knows how to manage the machines. So, the interesting thing in this scene is not so much to observe that racialized "mechanistic subjectivities" are othered, (though, of course, they are), but to question why these subjugated positions tend to be occupied by people of color in the first place. The novel's response is that they slip into positions of invisibility because they are already invisible. The narrator ends up at the factory after getting expelled from his university and discovering that he has no letters of recommendation, which made it difficult for most employers to want to see him. The narrator also notes that Brockway has very little education. When he speculates as to why this might be, he determines that Brockway was probably "protecting himself from something. After all, there was antagonism to our being employed. Maybe he was dissimulating, like some of the teachers at the college, who, to avoid

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[68] Alex Goody, *Technology, Literature and Culture* (Polity Press, 2011), 158.

[69] Goody, *Technology, Literature and Culture*, 158.

trouble when driving through their small surrounding towns, wore chauffer[70] caps and pretended that their cars belonged to white men."[71]

Whether or not the narrator is correct in his speculation, Brockway certainly does not seem to want to increase his visibility. At least, that is the reason he gives for not wanting to join the factory's union:

> That *damn* union! They after my job! I know they after my job! For one of us to join one of them damn unions is like we was to bite the hand of the man who teached us to bathe in a bathtub! I hates it, and I mean to keep on doing all I can to chase it outta the plant. They after my job, the chickenshit bastards! […]
>
> " 'Cause them young colored fellers up in the lab is trying to join that outfit, that's what! Here the white man done give 'em jobs," he wheezed as though pleading a case. "He done give 'em *good* jobs too, and they so ungrateful they goes and joins up with that backbiting union! I never seen such a no-good ungrateful bunch. All they doing is making things bad for the rest of us!"[72]

He claims he is not part of the union, because he does not want to attract negative attention from his employer that might cost him his job. In fact, his antagonism toward the union seems to be rooted in the belief that the union members are stirring up trouble to get him fired, because the young members want his job. We could be somewhat suspicious of his explanation, given that he has, at this point, gotten into a physical altercation with the narrator over the narrator's accidental presence in a union meeting, and has been pretty badly beat up. But there is nevertheless reason in his explanation. Much has been made of and disputed about Ellison's early association and later disavowal of American communism, but as Barbara Foley notes, there is strong evidence

[70] Chauffer is yet another operator position.

[71] Ellison, *Invisible Man*, 161.

[72] Ellison, *Invisible Man*, 173-174.

that Ellison was always pro-union.[73] It is therefore unsurprising that the anti-union mouthpiece in the novel is an unsavory character. But Ellison nevertheless permits Brockway to express a sense of precarity in advocating for visibility.

Brockway's paranoia, if unpalatable, is not unreasonable. There is a general atmosphere of suspicion in the factory. When the narrator walks in on the union meeting by accident as he retrieves his lunch, he is accused of being a spy. The members are fairly antagonistic toward him, as soon as they discover he works under Brockway, who is openly anti-union, though they briefly weigh the potential benefits of allowing him to join. Eventually, they decide to "launch a thorough investigation whether the new worker is a fink or no; and if he is a fink, let us discover who he's finking for! And this, brother members, would give the worker time, if he *ain't* a fink, to become acquainted with the work of the union and its aims"[74] (italics in original). The narrator is presumed a spy, until he can prove that he is not. Their distrustfulness stems from their positions of precarity. As the chairman explains, "we want you to understand that this is nothing against you personally. What you see here is the results of certain conditions here at the plant.

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[73] "Perhaps startling to readers familiar with *Invisible Man* is a letter that Ellison published in the *People's Daily World*, a CP-affiliated Wst Coast newspaper, in November 1954, by which time his raft was well launched into the mainstream of American letters. He had not published anything in the left press for over a decade. Addressing workers who might be approached by the FBI, he warned, "These rattlesnakes are like Anyface. … Unless you're prerparerd to stool on your Union, your friends, or on anyone else they decide you shall finger, they're deadly enough to spit out their fangs at your kids." Not cited in any bibliography of Ellison's work – it is noted only in his FBI file – this anomalous bit of journalism, redolent of the proletarian rhetoric he had presumably abandoned more than a decade before, suggests that, even as he was wining and dining with the New York literati and celebrating the nation's global cold war project, he was disquieted by attacks on class-conscious workers by the repressive state apparatus. He might not be a Communist, but he was still a union man."

Barbara Foley, *Wrestling with the Left: The Making of Ralph Ellison's Invisible Man* (Duke University Press, 2010), 67.

[74] Ellison, *Invisible Man*, 169.

We want you to know that we are only trying to protect ourselves."[75] Technological operators occupy a strange position. They are privileged readers of specialized technology, but because they are not visible in their work, they are replaceable as easily as their knowledge is transferable.

Even Brockway, whose knowledge is highly specialized and who works with machines that are incredibly opaque, is not wrong to fear losing his job. When he first learns that the narrator is to be his apprentice, he is deeply suspicious, as he believes one of the people in the personnel office is trying to get rid of him. Brockway conducts his own investigation of sorts, as he puts the narrator through a series of surprise interrogations:

> "How much pressure I got on that gauge right there?"
> […]
> "Forty-three and two-tenths pounds."
> "Uh huh, uh huh, that's right. He squinted at the gauge and back at me.
> "Where you learn to read a gauge so good?"[76]
> […]
> "By the way, who hired you?"[77]
> […]
> "How you hear about this job?" he snapped suddenly, as though trying to catch me off guard.[78]

The espionage overtones are fitting. Spies, like technology operators, do invisible work and are themselves invisible because of their work. Both are vessels of important knowledge, though their individual value is largely dependent on the knowledge they possess. And many spies are

[75] Ellison, *Invisible Man*, 170.

[76] Ellison, *Invisible Man*, 159.

[77] Ellison, *Invisible Man*, 159.

[78] Ellison, *Invisible Man*, 160.

actually industrial spies. Though there is no indication of corporate espionage in the paint factory, specialized knowledge is covetable even on an individual scale.

Indeed, Brockway reveals that personnel tried to replace him a few years ago, while he was recovering from pneumonia. They had replaced him temporarily with an engineer, and "started having so much paint go bad they didn't know what to do. Paint was bleeding and wrinkling, wouldn't cover or nothing."[79] He quit after hearing that personnel meant to replace him permanently in any case, but the factory owner eventually hired him back because "that fellow out at the plant don't know a thing about those furnaces. I'm so worried about what he's going to do, that he's liable to blow up the plant or something that I took out some extra insurance."[80] If Brockway was not already aware of the fact, this experience confirmed that his value is in his know-how. He gained more knowledge in the twenty-five years he spent operating the machinery than the engineer, who mistakenly believed that "'cause he been to some school and learned how to read a blueprint and how to fire a boiler he knows more 'bout this plant than Lucius Brockway."[81] With his knowledge of blueprints and the principles of boiler function, the engineer is closer to the position of designer than operator. His knowledge is less specific to the particular configurations and requirements of machines in the factory. With his suspicion that personnel is yet again trying to replace him, Brockway teaches the narrator nothing about how the machines need to be handled, only giving him specific instructions for isolated tasks. Brockway learned, in other words, that the way to protect himself is to keep the machines opaque. At the end of the chapter, he literally weaponizes his knowledge. As he is losing his

[79] Ellison, *Invisible Man*, 163.

[80] Ellison, *Invisible Man*, 164.

[81] Ellison, *Invisible Man*, 165.

fight with the narrator and the boilers start hissing, he seizes his opportunity and instructs the latter to quickly get to and turn "the white [valve],"[82] which ultimately gives Brockway time to get away before his instructions cause the invisible man to inadvertently blow up the factory and injure himself in the process.

In *Wrestling with the Left: The Making of Ralph Ellison's Invisible Man*,[83] Barbara Foley notes from Ellison's drafts that the factory scene was once much shorter, and that factory work was only one of many of the invisible man's short-term jobs, which also included working as a dishwasher for a wealthy white woman in a wheelchair. Originally, the invisible man gets fired from the factory at the end of his first day, after ruining the batch of paint. There is no Lucius Brockway, and there is no union meeting. The novel's reflection on the invisibility of labor and its associated paranoia develops extensively in later versions. The scene in which the narrator accidentally walks in on a union meeting is, according to Foley, actually less unwelcoming in the novel than in some of the drafts, in which the union members vote that the invisible man will not be permitted to join their union, regardless of whether he is found to be a spy or not. One way to read this shift in the novel's design is to note that in having the union members vote to allow the narrator to join the union if he is found to be innocent, the emphasis in the published version is on the union's instinct for self-preservation rather than on the members' hatred of the invisible man's boss.

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[82] Ellison, *Invisible Man*, 174.

"I reached the valves, and hearing him yell, "Turn it! Turn it!" "Which?" I yelled, reaching. "The white one, fool, the white one!""

[83] Foley, *Wrestling with the Left*, 187-236.

A section about Brockway, in which "[t]he proud originator of the "good strong base" of brown crystals that give Optic White its glorious whiteness […] heaves enormous brown clumps of pine residue into a machine that is "big enough to kill a man,"[84] is also significantly different in the published version. We have, in the published novel, a reference to the brown crystals, but we are not told what they are for or that they are Brockway's invention. In fact, the published version explicitly obscures this information about the crystals:

> Brockway took a shovel and scooped up a load of brown crystals from a pile on the floor, pitching them skillfully into a receptacle on top of the machine.
> "Grab a scoop and let's git going," he ordered briskly. "You ever done this before?" he asked as I scooped into the pile.
> "It's been a long time," I said. "What is this material?"
> He stopped shoveling and gave me a long, black stare, then returned to the pile, his scoop ringing on the floor. You'll have to remember not to ask this suspicious old bastard any questions, I thought, scooping into the brown pile.[85]

Although the brown crystals eventually serve to make the paint whiter, one might argue that the whiter white makes Brockway's labor visible. But not knowing in the published version that Brockway is, as Foley reveals, the "originator" of the brown crystals, his labor is further obscured. His knowledge is also further protected, with Brockway's silent response performing concealment not just for the narrator, but also the reader. Another marked difference is the way in which Brockway's labor is described as less physical and more cerebral in the published version. He "skillfully" scoops the brown crystals, rather than "heaves enormous brown clumps," into the machine. Indeed, the published version has very few mentions of Brockway doing physical labor. Most of the time, he is directing the narrator to check the gauges or pull on the

[84] Foley, *Wrestling with the Left*, 195.

[85] Ellison, *Invisible Man*, 162.

valves, thereby emphasizing both the narrator's inability to read the machines and Brockway's insistence on withholding knowledge.

In addition to these relatively minor but revealing variations, Foley recounts a curious episode titled "Wheelchair" that underwent several drafts but did not make it into the published version of the novel. In it, the invisible man works as "a dishwasher for a banquet held at an East Side mansion owned by a wealthy woman philanthropist"[86] in a wheelchair, whose fortune comes from "some anti-human labor-saving device."[87] Though such a device certainly sounds like a gun, its exact nature is unspecified. The unclarity of the description indicates the extent to which her wealth is removed from how it was made, at least in perception. We do not know what kind of labor contributed to her wealth – we just get a hint that it was costly, likely both materially and physically, for a lot of people. We then discover what it costs the narrator to work for her. As Foley recounts it:

> [A]fter working double the job for which he was hired—he mops the ballroom floor besides busting dish suds—he is scantily fed and discovers only $1.50 in his pay envelope; he explodes in angry mirth.
> Trying to find the exit he wanders past an equestrian portrait of the "founder of the line," a "fat man in a powdered wig," and onto the flower-covered terrace, where he meets his employer. She mistakes his ironic laughter for Negro cheerfulness; tossing the money onto her lap, on an impulse he grabs the wheelchair and propels her out of the garden and down the hill toward the river; the traffic cop greets the woman but ignores the protagonist: "Invisible, I thought. Invisible." A narcissistic and guilt-ridden liberal, she parallels her status as a cripple with his as a Negro and claims that this brusqueness is giving her a "lesson in humility."[88]

[86] Foley, *Wrestling with the Left*, 198.

[87] Foley, 198.

[88] Foley, *Wrestling with the Left*, 198.

Outwardly, she practices philanthropy "especially in relation to Negroes"[89] and keeps up appearances that would be consistent with the causes she takes up, having "no servants' entrance, and [an] icy-toned butler [who tells the narrator], "We are all human beings.""[90] But once inside, as a dishwasher (and unofficial floor mopper) the narrator becomes part of the machinery that gives her philanthropy its outward appearance. Evident from the absurdly low pay and the woman "mistak[ing] his ironic laughter for Negro cheerfulness," the narrator's human needs and expressions are illegible to the woman.

Whether his position at this job is one of operator, however, is unclear. The wheelchair scene, where he "propels her out of the garden and down the hill toward the river" has him directly interacting with technology, but there is no sense that he has any skilled knowledge when it comes to the wheelchair. He is the source of its rolling action, but that might just make him a user of the technology. It appears Ellison was himself ambivalent about the degree to which this action is dissociated from the invisible man who instigates it, as he explored various endings in his drafts. Foley lists: "The invisible man might return the woman to the mansion without incident. He might escape back to Harlem by subway but get expelled from Men's House for his outrageous behavior on the job. He might simply return to Mary's (where, in some variants, he already lives). Most dramatically he might duck the blows of a policeman and jump into the East River, to be rescued by a tugboat captain."[91] Though these possible endings are widely different from each other, a common thread of judgment seems to be whether or not he is

[89] Foley, *Wrestling with the Left*, 198.

[90] Foley, *Wrestling with the Left*, 198.

[91] Foley, *Wrestling with the Left*, 198-199.

perceived by others as owning the result of his action – whether others judge he should be held accountable, or whether his actions are invisible.

We can, of course, only speculate on the exact reasons for the edits Ellison makes between drafts. Considering variant drafts is illuminating, not because the succession of drafts provides a definitive trajectory of the development of the novel, culminating in its perfect form, but because it allows us to consider different assemblages of ideas and to glimpse how Ellison interpreted his own designs – which elements informing the development of the novel he sought to obscure and which he sought to reveal. The more discernible atmosphere of suspicion in the union meeting, the decreased visibility of Brockway's labor, and the absence of the wheelchair episode, for instance, all point toward an emphasis on the position of operator and the simultaneous privilege and precarity of its invisibility. The configuration of these scenes in the published version is more explicitly about the people doing the complex work inside the elegant technology. Although earlier versions returned to the theme of labor periodically, the published version ultimately offers the most forceful rejection of the elegance aesthetic.

Indeed, if the paint factory scene is about the obscured work and workers in the face of technological elegance, then the outward orientation of the elegant aesthetic is most closely associated with a clear villain, Dr. Bledsoe. He is the president of the invisible man's college, who expels the latter and sends him to New York with a recommendation letter that actually instructs employers not to hire him. Dr. Bledsoe's success is predicated on his ability to cater his outward appearance to the powerful white men to whom he ingratiates himself. He can switch instantaneously between yelling at the narrator and concealing his anger in front of one of the university's white trustees – "As we approached a mirror Dr. Bledsoe stopped and composed his angry face like a sculptor, making it a bland mask, leaving only the sparkle of his eyes to betray

the emotion that I had seen only a moment before."[92] He does not see this kind of behavior as being subservient, however: "I's big and black and I say 'Yes, suh' as loudly as any burr-head when it's convenient, but I'm still the king down here. I don't care how much it appears otherwise. Power doesn't have to show off. […] The only ones I even pretend to please are *big* white folk, and even those I control more than they control me"[93] (italics in original). He is, in a way, like Barbery's concierge. He crafts for himself an appearance that he believes would make the "*big* white folk" most comfortable and thereby most amenable. But maintaining this appearance requires a lot of work, and part of that work is the harming of other Black people, as he freely admits to the narrator that "I'll have every Negro in the country hanging on tree limbs by morning if it means staying where I am."[94]

Ultimately, Ellison rejects elegance, with the narrator living invisibly underground, inside the city's power grid, with an abundance of light – 1,369 lights of the "older, more-expensive-to-operate kind, the filament type,"[95] to be exact. In maintaining his wiring and his lights, he lives as an operator, but instead of using his knowledge of the grid to make things easier for those who interact with the grid in its external orientation, he makes things harder for them. The power company "suspect[s] that power is being drained off, but they don't know where."[96] Meanwhile, the invisible man looks forward to inventing unique gadgets for any specific needs that may arise; "maybe I'll invent a gadget to place my coffeepot on the fire while I lie in bed, and even

[92] Ellison, *Invisible Man*, 79.

[93] Ellison, *Invisible Man*, 109-110.

[94] Ellison, *Invisible Man*, 110.

[95] Ellison, *Invisible Man*, 6.

[96] Ellison, *Invisible Man*, 4.

invent a gadget to warm my bed."[97] Any work the invisible man does now is amply visible, lit by 1369 lights.

In closing, I want to briefly move a few decades back, to Sutton E. Grigg's turn of the century utopian work *Unfettered* for a potential answer to the question raised by Ruskin's observation that the invisibility of a worker's work indicates a worker's degradation: Does technological elegance generate a subjugated class of workers? *Unfettered* is Griggs's second utopia. While his first, *Imperium in Imperio*, dealt primarily with the failure of Reconstruction in the South, *Unfettered*, though fictional, proposes solutions for racial problems. As Griggs is widely considered a black nationalist, it is perhaps not surprising that the extension of agricultural programs for African Americans is central to his utopia. In addition to land ownership, he also promoted the usage of farm machinery.

> The age in which we live is fast shifting from a basis in which brute force is a great factor, to one in which skill and intelligence are the prime essentials. The day of the man who has naught to offer save his native strength is fast drawing to a close, and his night is all but upon us.
>
> The general refinement of taste requiring a higher order of intelligence to satisfy it; the inventive genius of man bringing into use complicated machinery—these are influences at work rendering necessary a greater measure of skill and a higher order of intelligence in the modern laborer.
>
> If the Negro would not be lost in the shift of the age, he must be trained with a view to the requirements of modern civilization. To this end Technological schools must be established throughout the South and other centers of Negro labor.[98]

He encourages African Americans, in other words, to become trained as operators, seeing the "skill and intelligence" required to operate "complicated machinery" as necessary for successful farming. In the "refinement of taste requiring a higher order of intelligence to satisfy it," he also

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[97] Ellison, *Invisible Man*, 6.

[98] Sutton E. Griggs, *Unfettered, A Novel* (Nashville, Tenn: The Orion Publishing Company, 1902), 256.

anticipates the elegant aesthetic becoming an industry standard. He writes about it with a sense of urgency and exhorts African American farmers to work toward that aesthetic.

The idea that operational work might create a degraded class of workers occurs to Griggs, but the mouthpiece for this thought is a group of former slave owners, who are enraged at the prospect of having to work their own land. "In view of a prospective scarcity of "hands" they had been notified that they would have to abandon their lives of ease and help to man the farms. The thought of performing the drudgery incident to farm life was very distasteful to them, and they became very bitter in their feelings toward the Negroes."[99] Their complaint suggests that the labor, the "drudgery incident to farm life," was perceived as degraded in itself, independent of the introduction of machinery. An intriguing implication of this suggestion is that introduction of machinery may be linked to types of labor that are already degraded. If that is the case, then technology does not generate, but merely replicates and enhances structures of labor organization that already exists.

[99] Griggs, *Unfettered, A Novel*, 51.

CODA

GUN NO. 3.1: ACTION FILMS AND A NEW ELEGANCE

In this dissertation, I argued that we need to encounter technological objects as designed objects – that we need to recognize them as objects that embed the intentions and worldviews of their makers and users. The impetus of this argument is to offer a kind of restorative reading that can uncover the relations between people that are obscured by capitalist modes of production. The idea is, essentially, that the human relations subsumed under object relations in industrial capitalism (ie: commodity fetishism) nevertheless leave traces in an object's design. And we should thus approach the object not as a ready-made product, but as something more like a palimpsest of intentions. From a methodological perspective, the hope of this dissertation is twofold. 1) To develop an understanding of technology as its own distinct narrative category. We might be inclined to think of technology in narrative fiction as simply descriptive detail or a subcategory of setting, but I argued that it is actually something quite specific and unique. Technological objects are agents of potential action that are integral to plot development and world building. 2) To develop a literary hermaneutics for the interpretation of technological objects. I suggest that reading technological objects for the intentions in their designs allows us to cultivate a new way of thinking about technological responsibility – to develop a kind of forward-looking responsibility that calls for a collective obligation to read for potential action. But why is the gun the exemplary technological object of this project? One could argue that there

are many different technological objects that could be read, and indeed I do read some of these. But the gun, as a technology that remains fairly legible in a world of increasingly hidden design, lends itself most readily to being read. Because of the high stakes of the gun's possible actions, we intuitively anticipate its various facets of intentionality. In Chekhov's case, the gun as metaphor serves as a way of illuminating the design and intentionality of literary technologies. The concreteness of the gun's design and the overtness of its intentions make the gun an ideal case study for the intersection of technological and narrative design.

As we move toward the present, however, the legibility of guns becomes less straightforward. In an interview with Pierre Berton in 1971, for example, Bruce Lee talks about how Warner Bros. wanted him to make a film set in modern times, but he did not see the sense in it because there is no space for kung fu in a world of guns:

> They want me to be in a modernized type of thing, and they think the Western idea is out. Whereas I want [to do a Western]. You see, how else can you justify all this punching and kicking and violence except in the period of the West? Nowadays, I mean, you don't go around kicking people or punching people. Because if you do, you know… [mimics drawing a gun from his jacket, points a finger gun at his interlocutor, and blows a raspberry]: that's it.[1]

Bruce Lee's gun is a type of gun we have often seen in literary fiction. Unlike a martial arts choreography, which tells a story through gestural language, this kind of gun is unnarratable, too fast and efficient for exposition. We have seen the likes of it in Thackeray's description of George's death in *Vanity Fair* ("No more firing was heard at Brussels – the pursuit rolled miles away. Darkness came down on the field and the city: and Amelia was praying for George, who was lying on his face, dead, with a bullet through his heart."[2]) and Dickens's description of

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[1] Calpeper Minutemen, "Bruce Lee Interview (Pierre Berton Show, 1971)," Youtube, August 26, 2018, video, 24:56, https://www.youtube.com/watch?v=uk1lzkH-e4U&t=1003s.

[2] William Makepeace Thackeray, *Vanity Fair,* (Hertfordshire: Wordsworth, 1992): 304.

Madame Defarge's death in *A Tale of Two Cities* ("Madame Defarge's hands were at her bosom. Miss Pross looked up, saw what it was, struck at it, struck out a flash and a crash, and stood alone – blinded with smoke. All this was in a second. As the smoke cleared, leaving an awful stillness, it passed out on the air, like the soul of the furious woman whose body lay lifeless on the ground" [3]). Narration attends to the before and after of the gun's action, but the action itself is elided. Drawing, aiming, and shooting the gun, as Bruce Lee demonstrates gesturally, is narratable, but the result of the action is instantaneous – shoot, and "that's it."

There is, however, in the action film genre another kind of gun, in the Chekhovian sense. Action films are invested in the narration of action. In Bruce Lee's case, this took the form of extended martial arts sequences. But films spotlighting technology often involve considerable exposition on technological objects. Consider, for example, the scene at the start of *From Russia With Love*, in which Q walks James Bond through the secret compartments of a briefcase, demonstrating each feature as he goes along ("20 rounds of ammunition" on either side of the handle, a "flat throwing knife" concealed along the side, an "AR-7 folding sniper's rifle" in the main compartment, "25 gold sovereigns" behind a panel on the inside, a "container of talcum powder with a tear gas cartridge inside" that attaches to a magnet at the top inside panel of the briefcase, and a detonator attached to the catches that goes off if the briefcase is opened the wrong way). Or take the auto body shop scene in the 2003 version of *The Italian Job*, when Mark Wahlberg walks through the shop as the mechanic talks him through the adjustments he made to the Mini Coopers ("I lost your small controls and 200 pounds of body fat: you got yourself a sweet ride now!"), or even the way Iron Man needs to constantly check the battery levels on his suit, to evaluate how much longer he can fight before he needs to recharge it.

[3] Charles Dickens, *A Tale of Two Cities*, (New York: Penguin, 2002): 383.

At first glance, these scenes might seem to be elucidating design. Q draws attention to the parts of the briefcase; the mechanic draws attention to parts of the car; Iron Man draws attention to his battery. But the genre of the explanations is more in line with instruction manuals than with blueprints. The design is still largely obscured. In the case of the briefcase, it is specifically designed to look ordinary. The special functions are, presumably, not something one could discern on one's own – even 007 needs to be told what to do. As for the adjustments made to the Mini Coopers, we are given no clue as to what might constitute 200 pounds of body fat for a car. And despite Iron Man's constant struggles with keeping his suit charged, the design of the suit does not even hint at where there might be a battery.

What seems, on the surface, like a potentially radical shift away from technological elegance, is just a sheen. The briefcase may not look elegant, but it still operates on a logic of concealment. What is interesting about this phenomenon is not so much that design is illegible – indeed, as I discussed in Chapter 3, that has become the norm – but rather that these films are interested in giving technological objects the appearance of legibility. If, as I have argued, our preference for elegant technologies implies a preference for not seeing the labor and laborers involved in making technologies work, then perhaps an appearance of complexity implies an interest in making invisible work visible. Our enthusiasm for action heroes who work with complicated gadgets may be a manifestation of such an interest. Indeed, the rise of the contemporary action film in the past few decades may be part of a larger trend in consumers pushing for transparency in production practices that can be traced back to the 1970s and includes the rise of DIY craft and ethical consumerism.[4] But as with greenwashing and the

[4] See Drehli Robnik, "Allegories of Post-Fordism in 1970s New Hollywood: Countercultural Combat Films, Conspiracy Thrillers as Genre Recycling," *The Last Great American Picture*

competition-driven marketplace of Etsy, the appearance of legibility in the technological objects of action films is actually a concealment of concealment – a transmuted elegance. The obscuring of labor takes a more insidious form now. There is no so-called outside of capitalism, but products can be made to look as though there is. Design is becoming more difficult to read, and the reading of design – the uncovering of intentions – is now more important than ever.

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