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THE AMBIVALENCE OF SCIENCE FICTION:
SCIENCE FICTION, NEO-IMPERIALISM, AND THE IDEOLOGY OF
MODERNITY AS PROGRESS

by

GRAHAM T. HALL

A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in English Literature
in the College of Arts and Humanities
and in The Burnett Honors College
at the University of Central Florida
Orlando, Florida

Summer Term 2013

Thesis Chair: Dr. James Campbell

Abstract

This thesis sets out to examine the relationship between science fiction and its conditions of production, specifically interrogating the genre's articulations of the ideology of modernity as progress. Sf has been characterized variously as a characteristically useful critical engagement with the ideologies of its context and as wholly ideological at the level of form, relying on the authority of a scientific episteme in its "cognitive estrangements," while not obligated to operate within the boundaries of this episteme. As such, the genre is unparalleled in its capacity to articulate ideologies under the guise of a putatively neutral science and reason. However, this same formal action places the genre in the unique position of being able to utilize the authority of a scientific episteme to re-evaluate the putative neutrality of that very scientific episteme. As a result, this study concludes that while the genre's reliance on the external authority of science in "cognitively" organizing its estrangements may make it particularly conducive to articulating ideological technoscience and the ideology of modernity as progress, the genre is characteristically ambivalent in this respect, both at the level of form and as a result of the incongruities between form and narrative. To support my thesis I engage a number of science fictional texts, focusing on Golden Age sf of the mid-20th century, while also branching out into explorations of a variety of 20th and 21st century sf texts, including texts from the pulp era, New Wave, cyberpunk, and post-singularity sf. I analyze within the effects of the conceptual mapping of society in terms of the natural sciences in sf, as well as the ambivalent presence of the robot as a megatextual motif, exploring the relationship of these to the ideology of modernity as progress and the post-scarcity fantasy of global mass consumption prosperity.

Dedication

For my family, whose unflinching support made this possible.

Acknowledgments

I would like to express my deepest gratitude to my thesis chair, Dr. James Campbell, for his invaluable academic insight, informed guidance, and honest encouragement, without which this thesis would have never made it past its inception. I would also like to thank my committee members Dr. Patrick Murphy and Dr. Bruce Janz for providing their profound academic expertise and insight throughout this process.

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Introduction

Sf has long been regarded as a useful tool of social critique and analysis by way of its extrapolation/estrangement/anamorphosis of its social reality. It has been credited by Fredric Jameson as a literary aesthetic knight-in-shining-armor here to rescue us from an "exhausted realism" (384) by helping us engage our own ideological limits. Meanwhile, the genre has also been characterized by China Miéville as, primarily, "capitalist science's bullshit about itself" (240). Sf is neither of these things, or rather something in between – it is in fact characteristically ambivalent regarding the ideologies of Western modernity, specifically that of modernity as progress. I contend that science fiction, on both a formal and narrative level, is a rather effective tool for probing and even expanding our ideological and epistemic limits, but that its formal techniques make the genre vulnerable to residual (as well as contemporary) ideologies, specifically those of neo-imperialism and the ideology of modernity as progress. While these ideologies are most thoroughly articulated in Golden Age sf, their traces are present in sf both preceding and following this period. It is in this same sense that John Rieder identifies colonialist ideologies "loom[ing] through the mists" of emergent sf and the pulp/space opera tradition that would follow it (15).

The ideology of modernity as progress involves bringing into the fold all of the holdouts to the modern capitalist world economy, the introduction of bureaucratization and systems of government within the format of the modern nation, the introduction of industrialization and consumerism, the imposition of monoculture and the eradication of subsistence agrarian

economies,¹ and the commodification of everything under the sun concomitant with the replacement of communitarian use-value with international exchange-value. It is especially characterized by the notion that these changes can be implemented on a world-scale by concerted efforts of foreign policy operating under the pretense (not necessarily in bad faith) of spreading democracy and liberal humanist principles across the globe and impelling global mass consumption prosperity. Furthermore, it functions in conjunction with an abiding faith in the merits of an accelerating technoscientific momentum and the technical rationalization of all corners of society. It is the ideology by which the global North rationalizes expanding its economic peripheries through neo-imperialist practices, often engendering a cultural assimilation that the protagonist of Vernor Vinge's "Conquest by Default" refers to as "murder without bloodshed" (132).

The narrative and formal levels of sf, both what it says and the way it says it, are mediated by the ideologies of imperialism and the ideologies of modernity as progress (accounting for their considerable overlap), as they have manifested themselves across modes of production. If formally the genre can flirt with escaping the ideology of its historical moment through estrangement, this estrangement carries with it ideological baggage that also bleeds into the narrative content of sf. I will open this thesis with an introduction of various useful approaches to sf in relation to my own, followed by an explanation of the overlap between neo-imperialism and the ideology of modernity as progress manifested in Chad Oliver's "Blood's a Rover." In the first section of this thesis, I intend to show that the genre's tendency to apply the methods of the natural sciences to society and social existence can become a conceptual tether,

¹ While the start of these trends predates the modern period, they are an important part of what would become the modern global economy.

one that made sf an accommodating home for the ideology of modernity as progress and the Post-WWII imperative for global modernization in mid-century sf, specifically Isaac Asimov's *Foundation* and Robert Heinlein's *The Moon is a Harsh Mistress*. In my second section I will provide a limited treatment of the ideological and ambivalent role of the robot in sf, specifically its functioning as a megatextual motif both reinforcing the idea of worker-as-machine and critiquing the exploitation this understanding impels. Furthermore, I will examine the fantasy of the robot proletariat as it manifests itself in *I, Robot*, and then trace its ambivalent operation from its origin in *R.U.R.* into later sf. I will also briefly address the potential of post-singularity sf as an articulation of a post-scarcity global mass consumption utopia impelled by technoscientific momentum. Finally, in concluding I will touch on the limits of the new push for "postcolonial science fiction" in sf criticism and writing, relating my own discussion to this trend.

Before I delve further into my analysis, allow me to explore some crucial approaches to sf in order to situate my own. Fredric Jameson identifies the usefulness of sf primarily in its shortcomings, specifically its tendency to "succeed by failure," and in spite of its estrangement, become "irrevocably mired in the all-too-familiar, [. . .] thereby becom[ing] unexpectedly transformed into a contemplation of our own absolute limits" (289). Darko Suvin's analysis, and Matthew Beaumont's extension of it, is a little more optimistic about the usefulness of the genre's estrangement, though it suffers its own blind spots. Suvin observes that "[sf] has always been wedded to a hope of finding in the unknown the ideal environment, tribe, state, intelligence, or other aspect of the supreme good (or to a fear of and revulsion from its contrary)" (25). He identifies a characteristically "cognitive estrangement" (24) as sf's formal function; the gist of his assessment is that sf is particularly critically useful because it is ultimately the straddling of the

division between empirical reality and an estranged "other world" that always alludes back to this reality. As such, the estrangement of sf is always a reassessment of our own social reality. Suvin's mistake is in failing to gauge when this incessant allusion to empirical reality becomes a tether, specifically when "cognition" as an organizing feature of this estrangement becomes so.

As Miéville points out, both Suvin's assessment of the specifically "cognitive" nature of sf's estrangements and Carl Freedman's treatment of the "cognition effect" (Freedman qtd. in Miéville 239) are inadequate, failing to take their hypothesis to its proper end and contemplate the ideological component of "cognition." I will argue that the authority of scientific rationality that this cognition relies on very often lends the genre a predisposition for articulating the ideology of modernity as progress. Beaumont draws Suvin's ideas out by linking the techniques of anamorphosis (particularly in painting) to sf's estrangement. Beaumont states that, in relation to social reality, the extreme perspective sf requires forces the reader to abandon a normal viewing angle, thereby rendering social reality askew. Such a technique demands a reassessment of social reality from an entirely unfamiliar angle. He specifically contends that, in addition to relying on techniques of rationalizing consciousness, "[sf] uses the anamorphic perspective inscribed in its representation of other times, other spaces, to de-realise this time, this space" (Beaumont 38). His understanding of Suvin's "nova" as anamorphs (much like the skull in Holbein's "The Ambassadors") and the anamorphic mirror as a metaphor for the general formal action of the genre (39) is rather brilliant and very useful conceptually. However, it is important to note that Beaumont fails to account for the way this very anamorphic action is still mediated by its own conditions of production. He instead views anamorphosis as an escape, a side-stepping of ideology: "An anamorphic image posits the coded presence of an almost

unimaginable reality that momentarily obtrudes on ideologically constituted reality, thereby rendering it arbitrary" (33). As attractive as this idea is, the anamorphic mirrors of sf do not simply come *ex nihilo* from some universal smelting cauldron. They are forged in part by their epistemic and historical moment. Surely the genre's anamorphic estrangements, its efforts to re-render this world by keeping only one foot in it, so to speak, are an invaluable critical tool. However, these anamorphic estrangements are made vulnerable by their reliance on the authority of science and the inscription of certain megatextual motifs which function both subtextually and on an overt narrative level to reinforce elements of Western neo-imperialist ideology – for instance, the motif of the robot, or the idea of social existence as defined by mechanics.

The idea of an sf megatext, a "large and mutable body of references [. . .] consider[ed] to be the shared subcultural thesaurus of the genre" (Csicsery-Ronay Jr. 362), implies that sf texts often share a certain set of background features and assumptions, many of which have their origins in an emergent sf plagued by colonial ideologies.² Much sf, for example, needn't take the pains to explain why or how humanity has spread throughout outer space – "veni vidi vici" is accepted as a given and is excused by "the myth of the empty lands" (McClintock 17). As Rieder notes, the abundance of vacant yet habitable planets in space opera seems to be an articulation of this ideological fantasy. He emphasizes that these ideologies were later perpetuated by a space-opera which, picking up the mantle of Victorian adventure fiction, is essentially driven by a desire to colonize outer space after Western civilization ran out of "white spaces on the map" (Rieder 37). In this respect, the writing of sf has often been an act of colonial impulse in the spirit of Cecil Rhodes' lamentation that "I would annex the planets if I could; I often think of

² See John Rieder's incredibly insightful text on *Colonialism and the Emergence of Science Fiction*.

that. It makes me sad to see them so clear and yet so far" (qtd. in Csicsery-Ronay 234). While Rieder notes that sf can articulate the desire to colonize the stars, he also observes that the genre's outward movement often serves as a de-centering that can provide an oblique perspective (an anamorphic action) on our own sociohistorical moment (2). However, this de-centering is not always as simple as it seems. It is, in fact, often a decenter to recenter, if you will.

Jameson's observation of science fiction's habit of "setting forth for the unknown" and finding itself "irrevocably mired in the all-too-familiar" (288) brings to mind Abdul R. JanMohamed's assessment of an overlapping field of literature, that of colonialist fiction, specifically what JanMohamed terms "the imaginary text" (67). JanMohamed assesses "imaginary" colonialist fiction in terms of Lacan's mirror stage, noticing in colonialist fiction an "enforced recognition from the Other [that] in fact amounts to the European's narcissistic self-recognition since the native [. . .] is cast as no more than a recipient of the negative elements of the self that the European projects onto him. This transitivity and the preoccupation with the inverted self-image marks the 'imaginary' relations that characterize the colonial encounter" (66-67). While I don't see this mirror function in as strict terms as JanMohamed, I hold that the act of estrangement in sf is often also an act of projection and self-recognition in a similar vein, particularly in the earlier melding of adventure fiction and science fiction. Being a literature that estranges while continuously alluding to social reality, science fiction can function as the self-creating an other image that is primarily a reflection of itself – it decenters simply to recenter, as in the attempt to escape biological essentialist racism through the use of the alien-as-racial other. While sf has moved far beyond the blatant xenophobia of early adventure fiction, it certainly needs to be asked: to what extent does the formal action of the genre still institute such a

narcissistic trend, however sporadic or marginal? The naive superimposition of our own social reality onto an alternative reality seems relatively commonplace throughout the evolution of the genre – for instance, the use of the alien to explore racial difference can be seen throughout 20th century sf, as I will touch on later. Even in the richest works of the New Wave, it certainly surprises how often the far flung planets of the universe happen to so serendipitously be peopled by, well, people. Not just people, mind you, in the sense that subjectivity is increasingly being ascribed to everything under the sun, but representations of humanity – humanoids (or literally humans, usually planted by the megatext's shared assumption of galactic empire) functioning in new yet also very familiar ways.

Darren Jorgenson points out the paradox at the heart of proposals that sf is more effective at escaping the ideologies of its reality than other literatures. He notes that "this contradiction can also be found in Darko Suvin's influential Marxist theorisation of SF that proclaims the historical quality of the genre in its ability to illuminate its 'author's empirical environment.' Again, this historicist circularity wants to claim agency for a genre that speaks of its own conditions of production" (Jorgenson 197). While Jorgenson is a little more rigid with his assessment, the important acknowledgment here is that if texts are products of their conditions of production, even their formal strategies are mediated by these conditions of production. However, for Jorgenson it seems ideology really does have no outside (aside from science – Jorgenson, like many other Marxists, falls in line with this Althusserian "Scientific Marxism" and insists on maintaining this unwieldy dichotomy between science and ideology).³ Jorgenson's revolutionary

³ Even if Marxists like Jorgenson and Jameson are correct about the opposition between ideology and science remaining largely intact (dubious, but I'll humor an opposition between a "pure ideology" and a "pure science") there is still no such guaranteed opposition between ideology and applied science; in fact, ideology infiltrates the applications of science with ease. It is my belief that science fiction is less about science than it is about the

sf would be one that melds text and actualization. I believe this already exists in technofuturism and transhumanism,⁴ and I am inclined to agree with Francis Fukuyama that the proposals and initiatives of transhumanism are some of the most dangerous, though I would add ideological and seductive, of our time (1).⁵

Unlike Jorgenson, Miéville unmasks the science/ideology dichotomy, drawing on the difference between ideal science and applied science when he observes that "To the extent that SF claims to be based on 'science', and indeed on what is deemed 'rationality', it is based on capitalist modernity's ideologically projected self-justification: not some abstract/ideal 'science,' but capitalist science's bullshit about itself" (240). This depends on the understanding that technoscience is ideologically mediated; while the virtual potential of science may be neutral, its actual presence in society is circumscribed by ideology. Furthermore, the authority of science, no doubt based on its great 'successes' (itself a value mediated contention), has the capacity to constrain those areas to which its reach does not yet, or perhaps cannot, fully extend. With this acknowledgment in mind, Miéville is merciless in his rebuke of Marxist sf theory that has vulnerably hinged itself on the imperative of "science and reason" as an escape from ideology:

In the aftermaths of two world wars and a holocaust which saw 'hard' *and* social science harnessed to mass industrial slaughter, [. . .] one might expect Marxist theory [. . .] to exhibit a certain caution about claims of the self-evident progressiveness of self-styled rationalism. One might consider [. . .] that the

application/implications of science in society. As I will point out, some of science fiction's most pernicious ideologies masquerade under the putative neutrality of science and reason.

⁴ Jorgenson also points out the Star Wars initiative of the 1980's; however, he seems to overlook the ways this actualization of sf's fantasies and its imposition of the very "scientific" logic, on which Jorgenson himself relies, can be horribly problematic, even counter-revolutionary.

⁵ Jorgenson's enthusiasm for an sf of actualization as a revolutionary sf is perhaps overzealous considering the priorities this actualization tends to lean toward.

model of a 'scientific rationality' that is 'progressive' in opposition to 'reactionary' 'irrationalism' is [. . .] a bad joke after World War I, let alone after the death camps. Yet this model is at the heart of the *grundnorm* of mainstream Marxist theory of SF. (241)

Indeed, it is rather absurd that sf is given a privileged status among fantastic literatures because of the presence of an authority simply based on that of science (as in, even the pretense of being "scientific"). As Miéville also suggests, this is even more alarming when considering the pernicious infiltration of ideology into the putatively neutral categories of science and reason, a phenomenon that I will examine throughout this thesis.

That being said, Miéville's consideration that "SF itself is *at the level of form* ideology" (242) is unsatisfactory, as I'm sure he would agree.⁶ Miéville argues that the "structuring levels of textual ideology at the level of SF-as-form (which go beyond those specific to a text's content) include this surrender of cognition to authority" (240). At the same time, however, he acknowledges that the authority that the "cognition effect" of sf relies on is the authority claim of actual science, reason, and logic, regardless of whether or not the text in fact abides by these (239). In this sense, the estrangement of sf is an estrangement aided not necessarily by actual science, but by the authority of a scientific episteme, and as such, cognitive estrangement is only able to venture as far as it can carry this authority.⁷ Michel Foucault characterizes an episteme as knowledge's historical "conditions of possibility" (*The Order of Things* 18), the grounds of

⁶ Miéville makes clear that his is a dialectical (in the Socratic sense) analysis that sets out from the propositions of his opposed view.

⁷ Such an examination as I am attempting here is made complicated by the fact that the sf episteme – that is, to what extent sf must rely on the scientific episteme and how far outside of its own boundaries the authority of a scientific episteme will operate – is multiple (as in the mid-century split between hard sf and New Wave) and varies historically based on a confluence of factors which include communities of sf writers, publishers, scholars, and genre conscious fans, as well as the nature of science at any given historical moment.

configuration and parameters for what can be considered knowledge, in terms of truth or certainty. He later revises and simplifies this, stating that "The *episteme* is the 'apparatus' which makes possible the separation, not of the true from the false, but of what may from what may not be characterised as scientific" (*Power/Knowledge* 197). In the time and space of Western modernity, a scientific episteme determines the only legitimate way of knowing, a way of knowing which first imposes itself within the Western social realm through increasing rationalization, then validates the spread of this rationalization to all social spaces of the globe. All other forms of knowledge are considered either isolated, subordinate, or dependant on the ability to be validated or invalidated within the parameters of the scientific episteme.⁸ While this reliance on the authority of a scientific episteme in sf becomes a useful (even ludic) tactic for the suspension of disbelief, the scientific authority governing the text's cognitive organization can serve as a dissimulation by which ideologies can inflect the text under the pretense of a putatively neutral scientific authority.

Since "generic identity is always generic difference" (Rieder 18), however, then we are forced to concede that, if at times the authority of science in sf is ideological, functioning as a dissimulating authority that assists in creating a reflective estrangement, at other times this estrangement, while founded on such an authority, is able to undermine the very authority it relies on, as in John Kessel's meta-sf "Invaders," or as in sf which undermines the authority of the scientific episteme as a grounds for truth or certainty while simultaneously relying on the very authority of that episteme in its estrangement, as in Ursula K. Le Guin's "Schrödinger's Cat." This is a text which relies on the more tentative and indeterminate authority of science at

⁸ It seems that today in the North, we pray to God, but we worship science.

its own boundaries, what I understand as a liminal area that straddles the boundary between the scientific episteme and that in excess of its grasp. While science has the potential to constrain that which exceeds its grasp, this same confrontation with the boundaries of a scientific episteme has the potential to reevaluate the authority of science as an exclusive or privileged episteme. If an sf text sets out suspending our disbelief with the authority of science (even when we know it is ascientific), it may do so for the very purpose of unmasking why the suspension of such disbelief should not have depended on this authority in the first place. In this respect I would respond to Miéville's consideration with my own, that sf is ambivalent regarding ideological technoscience (that is, the authority of a putatively neutral science that is inflected by ideology) especially as it relates to neo-imperialism and the ideology of modernity as progress. I believe that this ambivalence functions both at the level of form and, perhaps more frequently, in the incongruities between the form and narratives of the genre – such ambivalent narratives are capable of providing critical engagement with these ideologies even when they subtly perpetuate them.

Our Present Could Be Your Future

Chad Oliver's "Blood's a Rover" (1952) is a particularly useful example of the genre's ambivalent tendency to articulate the ideology of modernity as progress, in that, despite its efforts to genuinely explore the ethical implications of modernization through estrangement, because of its formal characteristics the narrative ends up endorsing spreading the civilization of a technoscientifically advanced Earth into outer space. This endorsement expresses the unsettling ideology that space belongs not just to "humanity," but to a specific epistemic and

socioeconomic subset of humanity – the wealthy global North. Sf often functions in a similar manner within its other axis of extrapolation, that of time. Within sf there is a tendency for the future to seem all too familiar to the discourses of Western modernity and the ideology of progress. There is the sense that "the future" is always that of a particular technocultural paradigm – the future belongs to the developed global North. The pretense of cosmopolitanism within sf's extrapolations along time and space often belies a subsuming of the cosmos by Western modernity. This incarnation of the ideology of modernity as progress in the text of "Blood's a Rover" is a manifestation of what Anne McClintock refers to as "anachronistic space" and "panoptic time" (40).

"Blood's a Rover" involves a human population on Earth tasked with technoculturally accelerating the planets of the galaxy to catch them up historically, as it were. This has become an ethical imperative given the impending extermination of the human race⁹ by an unseen but predicted interstellar invasion. "Blood's a Rover" placed in its context at first appears to be a fairly straightforward allegory exploring through anamorphosis the ethics of spreading capitalism and "progress" in the Cold War contest. The "First World" Earth faces the task of technoculturally accelerating the "Third World," those planets yet claimed by neither Earth nor by an ominous invading force, itself almost certainly subtextually inflected by the threat of Soviet antagonism and global socialist revolution. However, the text is far from a straightforward endorsement of American global hegemony; instead it attempts to utilize estrangement in order to genuinely examine the moral implications of neo-imperialist practices during a period in which artistic blacklisting was an acceptable practice in the United States. At many moments the

⁹ Outer space is peopled by less "advanced" humanity in the text (19).

text makes great use of this estrangement to engage the ethical implications of neo-imperialism and modernization. However, the text relies on an anthropological frame for its cognitive organization,¹⁰ a frame that while functioning under the authority and putative neutrality of science, easily carries with it the ideology of modernity as progress.¹¹ The text's organization is thus necessarily ideological, before the narrative exploration even begins. As such, despite its good faith efforts at attaining critical and ethical insight, "Blood's a Rover" ultimately ends up rendering American global hegemony as a necessary evil. The anthropological organization of the text adheres to the colonialist assumption that progress follows a very specific formula, an assumption in which "The stubborn and threatening heterogeneity of the colonies was contained and disciplined not as socially or geographically different from Europe and thus equally valid, but as temporally different and thus as irrevocably superannuated by history" (McClintock 40). Such an ideology suggests that to progress means to move toward the technocultural paradigm of Western modernity. The periphery is figured as the past, or as an absence within history, the colonial center is figured as its future. "Blood's a Rover" evinces this sentiment in the anthropological assumption that "All they were doing was to accelerate the normal rate of change for a given planet" (Oliver 20). This dependence on the authority of anthropology ends up overriding the protagonist's recognition of a scientific blind spot, the fact that "Men were not like chemicals, and they did not always react as they were supposed to react. There was always an individual variable to be considered" (20).

¹⁰ Chad Oliver was a professor of anthropology.

¹¹ I will elaborate in my next section on how the spread of the natural science model into social studies can be intensely ideological.

As McClintock notes, "emboldened in the 1950s by its economic 'great leap forward' (space, again, is time), the United States was empowered to insist globally that other countries could progress only if they followed the U.S. road to mass-consumption prosperity" (392). The failure of this process was masked by the fact that rising standards of living can prove to be something of a shell game: "particular regions of the world may change their structural role in the world-economy, to their advantage, even though the disparity of reward between different sectors of the world-economy as a whole may be simultaneously widening" (Wallerstein 469). As McClintock observes, this was in fact the case following decolonization throughout the Cold War, as "the United States and the former European colonial powers have become richer, while, with a tiny scattering of exceptions, their ex-colonies have become poorer" (393). Immanuel Wallerstein explains that:

The ongoing process of a world-economy tends to expand the economic and social gaps among its varying areas in the very process of its development. One factor that tends to mask this fact is that the process of development of a world-economy brings about technological advances which make it possible to expand the boundaries of a world-economy. (469)

Expansion of the peripheries beyond our current capacity, geographic, productive, and socioeconomic, becomes necessary for growth toward mass consumption prosperity to continue. It is in this sense the ideology of modernity as progress demands a science fiction future; it requires that we imagine a future with endless technoscientific and interstellar frontiers, by which technoscientific momentum will provide both the means of expansion through space, as well as provide itself as a replacement for labor.

The illusion of the parity that modernization theory promotes is perhaps nowhere more adequately expressed than in Tom Nairn's discussion of the evolution of the modern nation and later waves of nationalism:

Because they came second, into a world where the English Revolution had already succeeded and expanded, later bourgeois societies could not repeat this early development. Their *study and imitation engendered something substantially different* [. . .]. Actual repetition and imitation are scarcely ever possible, whether politically, economically, socially, or technologically, because the universe is already too much altered by the first cause one is copying. (qtd. in Anderson 155-56)

By the time the global South was encouraged to modernize, they were still structurally in the weaker position in terms of the world economy. This meant that they were left in a perpetual game of catch-up in which the concentration and balance of global wealth and occupational skills had largely settled. This fallacy of a world of parity and global mass consumption prosperity made possible by modernization is the ideological dissimulation that "Blood's a Rover" ultimately conveys as a result of its anamorphosis. It is in this same spirit that Asimov's *I, Robot*, published around the same time as "Blood's a Rover," expresses the ability to travel through the galaxy and colonize as the answer to freedom for humanity: "We've escaped the sun. We've escaped the Galaxy. Mike, this ship is the answer. It means freedom for all humanity – freedom to spread through to every star that exists" (111). This freedom is more coherently expressed as "the opportunity for galactic empire" (113). As Herbert Marcuse would likely observe, it is the striving for this kind of far off (and illusory in a number of respects) freedom that becomes the

rationalization of the structure of humanity's current unfreedom in a technically organized advanced capitalism and its impositions on the rest of the world. It is problematic that what is expressed as a fascinating and seductive fantasy in sf is in fact the delusion that the logic of Western modernity demands if global mass consumption prosperity is to be achieved. It is in keeping with this fantasy that the delusion of infinite technoscientific and interstellar frontiers find their release time and again within the vaults of sf.

To be clear, the evolution of capitalism in Western modernity has specifically unfolded in an unwavering complicity with a technocultural momentum that defines the ideology of modernity as progress as it arises in sf, specifically as it relates to neo-imperialism and global empire. Istvan Csicsery-Ronay elaborates on the way sf tends to express a technocultural momentum that functions in line with the totalizing nature of global capitalism mapped out by Antonio Negri and Michael Hardt in *Empire*. Csicsery-Ronay notes that "the genre's favorite counterfactual operations and mechanisms are all made rational by imperial ontology" adding that some of science fiction's most central narratives and motifs "rely on a cosmos governed by the laws and right of technoscience" (238) and "operate in the same social-ontological continuum, the most salient quality of which is the ability of sentient beings to construct technological cultures to manipulate and extend their power over the worlds in play" (241). While it should be noted that technoscientific progress does not necessarily impel all sf, it would cost the genre of sf dearly to avoid any complicity with this ideology. Even where its narratives attempt to steer clear of the ideology of progress, as a result of the genre's form, it often makes its way in the back door even as it is being kicked out the front.

Jameson's recognition that "there is, indeed, something also at least vaguely comforting and reassuring" in the belief that civilization is not "seized, immobile forever, in some 'end of history'" (288) articulates what he recognizes as the ideological function of the genre. Jameson contends that by rendering the present as "the determinate past of something yet to come" (288), the genre takes up the mantle of the historical novel in expressing "a *memory* of qualitative social change, a concrete vision of the past which we may expect to find completed by that far more abstract and empty conception of some future terminus which we sometimes call 'progress'" (284). This can perhaps be more easily understood as what Slavoj Žižek refers to as an ideological "safety valve" (qtd. in Aitkenhead), a mechanism that inhibits change through the comforting (yet fallacious) encouragement that change is in fact occurring. The safety valve is a useful metaphor, because it evokes the release of pressure or guilt, as a sort of ideology that, rather than providing impetus, removes it. Žižek believes that such "safety valves" may have more of a role in the lingering and totalizing nature of latest capitalism than many Marxists account for. For instance, I find it ironic to consider the possibility that, in mapping out a historical dialectical process and disseminating it into the mass consciousness, Marx himself may very well have sapped some of the energy of what was supposed to be an inevitable global socialist revolution.

Benjamin perhaps speaks to this embarrassing possibility in his contention that "Social democratic theory, and still more the praxis, was determined by a concept of progress which did not hold to reality but had a dogmatic claim. . . as something essentially unstoppable (as something self-activating, pursuing a straight or spiral path). . ." (6) and in the recognition that "There is nothing which has corrupted the German working-class so much as the opinion that

they were swimming with the tide. Technical developments counted to them as the course of the stream. . ." (4). Even to hear contemporary Marxists speak of "late capitalism" is somewhat problematic, in that, intentionally or not, it can carry with it traces of the sentiment that capitalism's (presumably somewhat imminent) end is a foregone conclusion, and that we can simply watch as capitalism winds itself down (or up and over the edge of a cliff, as the case may be).

In addressing some of the shortcomings of Marxism, Benjamin notes:

[A] vulgar-Marxist concept of what labor is, does not bother to ask the question of how its products affect workers. . . It wishes to perceive only the progression of the exploitation of nature, not the regression of society. . . To the corrupted concept of labor belongs, as its logical complement, that nature which, as Dietzgen put it, "is there gratis." (5)

Here Benjamin also speaks to the problematic Western dualism that Marxism relies on, that of man/nature or culture/nature. The troubled relationship between technocultural momentum and the biosphere does not go ignored in sf, but the genre's tendency to present a future in which humanity has survived due to a technocultural momentum that amounts to the increasing rationalization of society and an "ever-increasing throughput of materials and energy" (Princen 5), despite this troubled relationship, is problematic.¹² In sf there is an abiding (if at times subtle) faith in the capacity of technoscience to solve the problems it creates. For instance, that nuclear radiation is proposed (or perhaps hoped) to be a suitable super-fertilizer in "Blood's a Rover" is

¹² A science fiction novel where everyone is dead because of the incessant onward movement of technoscience seems like it would be difficult to swing. However, Ray Bradbury's "There Will Come Soft Rains" does serve as a dark meditation on this very circumstance, while perhaps also being a brilliant send-up of the difficulty of extending such a story.

possibly an incarnation of this faith in technoscientific progress, despite the existential threat it poses to humanity and the biosphere.

Anxieties regarding existential threats are a recurring motif within sf and the relationship of this motif to the ideology of progress must be traced. The fear of the "end of the human race" (Oliver 20) is an understandable one in the United States of 1952, faced with the Soviet Union's explosion of their first atomic bomb in 1949 and in the midst of the McCarthyite demagoguery of the second Red Scare. This fear functioned very much in service of global capitalist ideology and impelled the neo-imperial efforts to maintain global hegemony that would follow and which seem very much to inform the text of "Blood's a Rover." The text revealingly elides this anxiety of a Cold War nuclear holocaust in its mapping of panoptic time, noting that "The world wars had been fought to produce atomic power" (30) but leaving the unfolding power dynamic of the Cold War as a driving subtext. In light of this subtext, it becomes important to interrogate precisely why, and at what level, ideology infiltrates the text of "Blood's a Rover." As I've already touched on, the text's inheritance of the ideology of anachronistic space comes from its reliance on the authority of science in its "cognitive" organization. However, other formal characteristics necessarily come into play to compel this text to express the imperative of neo-imperialism and the ideology of modernity as progress. Certain generic topoi, just by being there in the text, provide themselves as ideological vessels that alter the configuration of the text, as though the anamorphic action of the genre itself is mediated here by the ideology of modernity as progress. The supercomputer that predicts the threats of the future (mediated by ideological technoscience), the outside alien threat (mediated by xenophobia and more specific Cold War anxieties), and the technologically advanced alien saviors (mediated by the ideology of

technoscientific progress), are conventional generic nova that the text employs in its narrative, topoi which infuse the text with the imperative of modernization and the ideology of modernity as progress in ways that would not have been possible were they absent.

"Blood's a Rover" is very much at odds with itself in this respect. The protagonist wonders what the point is of "tear[ing] around over the galaxy like a bunch of kids playing Spacemen and Pirates, [. . .] some half-wit game where one side doesn't even know it's playing, or on which side of the field" (3), though he is ultimately induced by an ideological anamorphosis to find the point of it all. The narrative is characterized by a thorough questioning of the merits of the neo-imperialist imperative to modernize the world. The protagonist wishes that instead of focusing on a deferred future, "they could just forget it all, just live, there was so much to enjoy" (Oliver 3). However, the text's nova – particularly the predictive supercomputer – reinforce a particularly interesting and prevalent ideology, that which demands humans act (or don't act, whichever the case may be), not for themselves, but for the sake of "their children and their children's children" (31). Curiously, precisely whose children is rarely ever pinned down, nor is when exactly their future will be secured. That "the children are our future" is the nebulous, supposedly evanescent yet ever-present rationalization for "progress" and the oppression it requires. This rationalization functions rather neatly in line with the deferred dream of utopia as a characteristic of the ideology of progress¹³ – it is this deferral that sf is often forced to function in line with. The obverse of this deferral, specifically its capacity to strip the initiative of the oppressed, can be seen in Walter Benjamin's reference to the forerunner to the German

¹³ The movement of technocultural progress in the face of an ethereal menace is figured as "a monument to [man's] hard-won maturity" (20), seeming to revisit Sigmund Freud's pathologizing of native resistance to "progress" as infantile.

Communist Party "assigning the working-class the role of the savior of *future* generations. . . thereby sever[ing] the sinews of its greatest power" (5).

Throughout the narrative the protagonist's efforts at enforcing modernization are marked by a "dark regret and sadness cours[ing] like ice through his veins" (12). Conan Lang even directly calls into question the ideology of modernity as progress itself, wondering whether modernization is a "Climb – or descent?" (13). Furthermore, it is repeatedly acknowledged that what the manipulated developing societies are turned into is "awful" (24). "Blood's a Rover" outlines in detail the detriment of technocultural progress, including overspecialization reducing resiliency (30), "society. . . divid[ing] into the landed and the landless," "constant warfare [and] the production of new weapons" (23), "joint family co-operation br[eaking] down," "slave[ry]" (24), "slums" (23), and "lives. . . destroyed" (25). In presenting the juxtaposition of agrarian subsistence society with that of Western modernity, the narrative observes that prior to anthropological manipulation:

The dry ricefruit was grown by a cutting and burning method, under which a field gave a good yield only once before the land was exhausted and the people had to move on. Under these conditions, individual ownership of land never developed, and there were no inequalities of wealth to speak of. The joint families worked different fields every year, and since there was no market for a surplus there was no effort made to cultivate more land than was really needed. (Oliver 20)

There is a tension elucidated within the text between this eutopic pre-modern society and technoscientific utopia in "Blood's a Rover," the fear of regression and the promise of utopia moving civilization ever farther away from eutopia. I distinguish here between eutopia and

technoscientific utopia, "eutopia" being the imaginable un-propriated, classless society rooted in its biophysical life support system (i.e the biosphere), founded on actual interpenetrating multiplicities rather than essentialist dualism, and "technoscientific utopia" being defined as the impossible goal of a "humanity" or "culture" dominating "nature,"¹⁴ and the dream of technocultural momentum flinging humanity into the heavens rather than oblivion. To escape a looming yet ethereal threat – the threat of Soviet antagonism and global socialist revolution amplified in its anamorphic transposition as the threat of extinction by invading aliens from outer space – civilization must plow toward the distant and deferred utopia of Rerma, "the human race in full flower" (30). Furthermore, the text's anthropological frame charts the trajectory of progress as moving between two extremes: "give'em an atom bomb or two. . . Or take'em back to the caves" (6). The idea of sufficiency as explored by Thomas Princen, of enough technoscience and enough consumption, is lost in the fantastic battle between utopia and oblivion. Ultimately, as a result of the ideological mediation of its anamorphic action, the text ends up endorsing technoscientific utopia as an ethical imperative.

Through its estrangement "Blood's a Rover" had the potential to be a genuine exploration of the ethical implications of neo-imperialism and modernization. Instead, as result of its reliance on the authority of anthropological science and its utilization of generic nova, it ultimately functions as a problematic revival of Rudyard Kipling's "The White Man's Burden" transposed into the Cold War era struggle for global hegemony. Though the final revelation of Earth's own manipulated technocultural acceleration forces the reader toward the decentering recognition, in the spirit of Conrad's Marlowe, that "this also [. . .] has been one of the dark places of the Earth"

¹⁴ Each of these terms entirely constructed within the dualism and binary oppositions that structure Western philosophy and impel any number of Western civilization's conflictual relationships.

(Conrad 4), or in this case, the universe, the text reinforces the call of progress nonetheless. The
Rerma are this utopian calling, the vision towards which the metropolitan world has been called
to guide civilization through an unfolding technocultural progress. This calling, literally imposed
from outside of this world, emblazons progress as a transcendent impetus, an inevitable force
functioning outside of social agency.

"Events may roll unheeded":

Scientific Narratives of Social Existence and Progress in SF

Given that "Science fiction considers human life – what people *are* – in terms of what science *knows* (or thinks it knows)" (Evans et al. 416), the metaphors that science offers us are often grafted onto or serve as conceptual maps for narratives of society, existence, and progress in sf. As an aspect of the genre's reliance on the authority of scientific rationality, this tendency limits the genre and can guide its presumptions toward problematic ideologies, including the ideology of modernity as progress and the imperative for technoscience itself as a neutral authority. My primary argument is that, at best, this scientific mapping of social narratives tends to express the fatalistic inevitability of unfolding events, thereby disempowering humanity by neglecting human agency and reinforcing the futility of human action. At worst, it maps the unfolding future for us, in keeping with the principle of scientific rationality and technoscientific progress itself as a litmus for social improvement. Such a conceptual map is a fundamentally false way of thinking about society that in turn guides society into mimicking its presuppositions. This conceptual map of society understood through the logic of the natural sciences is observable in a myriad of science fictional works spanning the genre's history, including the works I will examine from the pulp era, Golden Age sf, New Wave sf, and posthuman sf. For the purposes of this chapter I'll be exploring its incidence in Pamela Zoline's "The Heat Death of the Universe" (1967), Ted Chiang's "Exhalation" (2008), Phillip K. Dick's *Do Androids Dream of Electric Sheep?* (1968), and John Campbell's "Night" (1935). In examining the danger of such a conceptual schema, Paul Davies notes that "people convinced that the concept of individual

choice is a myth may passively conform to whatever fate an exploitative social or political system may have decreed for them. If you thought eugenics was a disastrous perversion of science, imagine a world where most people don't believe in free will [though I would say agency]" (2). As I will show, this conceptual map as a generic trend makes sf an accommodating home for the ideology of modernity as progress, as can be seen in the way it manifests itself in Isaac Asimov's *Foundation* (1951) and Robert Heinlein's *The Moon is a Harsh Mistress* (1966). I will elaborate how this can be seen in the way both *Foundation* and *The Moon is a Harsh Mistress* refract and inflect their historical and ideological context through scientific narratives of society, reinforcing American hegemony and the ideology of modernity as progress in the process. It cannot be overemphasized that the logic of scientific mapping and managing of society as an inevitable and predictable, yet malleable (though only by an elite), progression of events, as manifested in the Seldon Plan and the Lunar Revolution, is wholly analogous to the logic of modernization theory, the post-WWII modernization fervor, and this new American "manifest destiny" during the Cold War contest. I will also show throughout that, however pernicious, even this trend lends itself to the ambivalence of sf, both at the formal level and at the level of form inflecting narrative.

Anthony Giddens recognizes a "scientific" conception of "*Dasein*"¹⁵ and society being indebted to sociological naturalism and structural functionalism, which is to say approaches to social systems that view them as largely identical to the "natural" systems explored by the natural sciences and that favor structural determinism. Giddens specifically refers to the manner by which the "orthodox consensus" in the social *sciences* often "deriv[es] from a natural science

¹⁵ A term referring to the reflexive form of existence specific to humanity, which Giddens borrows from Heidegger. My use of "existence" throughout is meant in this sense.

model" (Giddens xxxv). This totalizing trend resembles what Max Weber refers to as the rationalizing trend of modernity, which involves "the progressive mathematization of experience and knowledge, a mathematization which, starting from the natural sciences and their extraordinary successes, extends to the other sciences and to the 'conduct' of life itself" (ctd. in Marcuse, "Industrialization" 153). This drives sf in the direction of understanding social existence and social systems through time in terms of causal processes which can be understood and measured empirically and predicted either with a degree of certainty or probabilistically. Far from being exclusive to sf, I would suggest that this conceptual metaphor (e.g. the social organism or the social machine), through which we tend to understand society, simply finds an accommodating home in sf. I do not intend to suggest that society is not bound by the laws of mechanics or other scientific principles (there is no reason to believe it isn't), nor is it my task here to argue whether or not society can be understood as a complex or indeterministic system. I simply contend that reducing society to a discussion in terms of these laws is problematic for a number of reasons, one of which being that such a discussion reinforces the sociological naturalist fallacy that the social world is not somehow distinct or more complex than systems which do not include conscious reflexive agents (Giddens xiv).

I am very much in agreement with George Lakoff and Mark Johnson's assertion that the mind, as a plastic subjective sieve of sorts,¹⁶ relies on a conceptual system that is largely metaphorical in nature. As "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" (Lakoff and Johnson 9), this chapter will very much be an

¹⁶ I do not intend to make any statements regarding "free will" as I find this concept to be rather ambiguous and ill-founded. Instead I will largely rely on the idea, not unlike that developed within structuration theory, that human agents are incredibly complex actors whose subjective "sieves," if you'll forgive the crudeness of that metaphor, are both modified by and in turn modify the social structure they co-constitute through action.

examination of the way that the ideas science offers tend to manifest themselves as metaphors for the social world in sf. I will map out the ideological effect of these metaphors, such as the conceptions of the human as a machine (which I will further develop in my next section), society as a machine, society as an organism, and society as a laboratory, among others, as they arise in sf. Lakoff and Johnson suggest that "Metaphors have entailments through which they highlight and make coherent certain aspects of our experience" (114). As a result, "Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent. In this sense metaphors can be self-fulfilling prophecies" (115). This has obvious ideological implications for those areas of our lives which easily escape attempts at representation, such as human existence and society, and which rely largely on metaphors for conceptual understanding. I contend that in the cases examined here, "the metaphors we live by"¹⁷ are largely ideological, which is to say that they represent our reality as something else, and are very much tied up with the perpetuation of social modes or trends (such as the "inevitable" global spread of technoscience and industrial capitalism) and the existential malaise and lethargy of modern humanity.

Social Existence as Entropic

I propose Pamela Zoline's "The Heat Death of the Universe" as a model from which to set out in our examination of the ways in which the social (which is to say, the human sciences) is frequently mapped by the scientific (which is meant to refer to the natural sciences) in sf. "Heat

¹⁷ In some cases these might be more accurately referred to as "synecdoches we live by," as they insist on understanding society solely through the laws of a system of which it is a part.

Death" is a particularly useful example of this trend because it is a literary exercise that overtly maps the existential crisis of an overburdened house wife by the second law of thermodynamics and the hypothesis of the heat death of the universe. The narration outlines this hypothesis as follows: "it has been held that the Universe constitutes a thermodynamically closed system, and if this were true it would mean that a time must finally come when the Universe 'unwinds' itself, no energy being available for use. This state is referred to as the 'heat death of the Universe'" (Zoline 420). Such a heat death is represented as a teleological given, and while it is conceded that "It is by no means certain, however, that the Universe can be considered as a closed system in this sense" (420), the protagonist already shows herself to be governed by its perceived inevitability when, drinking a Coke, "her eyes glass with the carbonation [and] she thinks of the Heat Death of the Universe" (420).

The familiar opening image of "Heat Death" is a telescopic one, a juxtaposition of domestic time with deep time, the domestic space with interplanetary space: "Imagine a pale blue morning sky [. . .]. The earth rolls and the sun appears to mount, mountains erode, fruits decay, the Foraminifera adds another chamber to its shell, babies' fingernails grow as does the hair of the dead in their graves, and in egg timers the sands fall and the eggs cook on" (416). This juxtaposition of the kitchen egg timer with the measure of time itself, namely the movement of planetary bodies, inaugurates the text's mapping of the social and existential through the conceptual metaphors of the natural sciences. This image not only aligns the unfolding of deep time with domestic time, but implies a symmetry between the deterministic causality of Newtonian physics (the movement of planetary bodies, the erosion of mountains) and a causality of social systems. This causality already establishes itself as a pervasive sense of inevitability

infiltrating the domestic and social space when, upon serving her children "Sugar Frosted Flakes" the protagonist Sarah Boyle imagines "already hearing [. . .] the bony whine of the dentist's drill" (417).

The protagonist's life as a housewife is set up as a battle to establish homeostasis, explained to be the "Maintenance of constancy of internal environment" (Zoline 419), in the face of inevitable entropy:

The entropy of a system is a measure of its degree of disorder. The total entropy of any isolated system can never decrease in any change; it must either increase (irreversible process) or remain constant (reversible process). The total entropy of the Universe therefore is increasing, tending towards a maximum, corresponding to complete disorder of the particles in it. (419)

As Sarah Boyle begins to orient her own existential malaise by the concept of entropy, her confrontation with the absurd becomes inflected with a sense of futility and inevitability as a physical law. Faced by her position as a young housewife, she muses that "There must be more than this. . . What could one do to justify one's passage? Or less ambitiously, to change, even in the motion of the smallest mote, the course and circulation of the world?" (426), which is to contemplate the futility of agency in the face of structural constraint. While considering the long life of turtles, Sarah considers that "To carve a name, date and perhaps a word of hope upon a turtle's shell, then set him free to wend the world, surely this one act might cancel out absurdity?" (426). However, upon discovering her children's pet turtle dead, surrounded by a house in disorder, Sarah Boyle falls into despair. The echo that "The total entropy of the Universe therefore is increasing, tending towards a maximum, corresponding to complete disorder of the

particles in it" (428) is immediately followed by the image of Sarah crying, her mouth open; the ultimate implication is that her efforts at driving her own life and affecting the social world at large are futile. The text returns to the image of the egg timer, itself a measure of inevitably falling sand; the image of eggs (themselves signifiers of Sarah Boyle's perceived destiny of childbearing and domesticity) being thrown "through the fine clear air" (429) implies a tacit symmetry with a life resembling their ballistic trajectory. Thus the unfolding of time and the motion of falling bodies comes to not only parallel but implicitly determines the protagonist's despair and sense of futility.

The story ends with the protagonist succumbing to an ostensibly inevitable existential thermodynamics/mechanics. She fails to confront the absurd and, in the words of Albert Camus, "draw from the absurd three consequences, which are my revolt, my freedom, and my passion" (64). This revolt, freedom, and passion, might be better understood as agency and resistance, or in terms of Michel de Certeau's understanding of "tactics" as opposed to "strategies." For Certeau, tactics, defined by opportunities of subversion through time, are the everyday expression of a kind of individual resistance to the strategies of power that encompass spaces (territorial and conceptual) of living (Certeau 1251-54). In between the tension of structure and agency, the tactician "draws unexpected results from his situation" (1248). Unlike Sarah Boyle's hopelessly falling eggs, Certeau recognizes more "indeterminate trajectories" (1251) in everyday life. In "Heat Death," just as the sand within the egg timer and the egg's trajectory are inevitably determined by the laws of their physical system, the metaphor of the protagonist's constraint within the "closed system" of her household functions to express a perceived inability to escape the structural position to which her gender role has consigned her. It is observed that "Many

young wives feel trapped. It is a contemporary sociological phenomenon which may be explained in part by a gap between changing living patterns and the accommodation of social services to these patterns" (Zoline 419). Such an observation foregrounds the structural properties of the social system at the expense of occluding agency. However, in addressing the incursions of disempowered individuals into the systems that regulate them, Certeau notes that "these 'traverses' remain heterogeneous to the systems they infiltrate and in which they sketch out the guileful ruse of *different* interests and desires. [. . .] Statistics can tell us virtually nothing about the currents in this sea theoretically governed by the institutional frameworks that it in fact gradually erodes and displaces" (1251). This suggests that the macrosocial always diverts to the contingencies of the individual agent. It is in this sense that the individual's interests and desires are not wholly governed by the strategies of power within which they exist, but carry a hopeful potential of outmaneuvering these strategies at the very least, and at best, transforming them. It is this hopeful potential that ends up effaced by the narrative's fatalistic mapping of existence by the concepts of the natural sciences.

Ted Chiang's "Exhalation" takes the grafting of the scientific onto the social one step further than "Heat Death" by making the second law of thermodynamics itself the source of life and mechanism of agency. As an oblique examination of "the marvel that is [human] existence" (Chiang 756), the text is marked by the same telescopic superimposition of cosmological laws onto consciousness and existence as "Heat Death." However, in "Exhalation," the entropic movement observed in "Heat Death" becomes the function of human agency itself. The machinations of the mind/body are painted in terms of thermodynamics and machinery (the text's protagonist is effectively reductionism taken to its logical extreme and applied to humanity, with

a twist) while, interestingly, the cosmological is painted in terms of organic life, "exhaling" and "dying" (I will return to the latter as it pertains to an emphasis on structural determinism). The source of human life is suggested to originate in the beginning of the universe which "began as an enormous breath being held" (753), the exhalation of this "great lung of the world" (744) being understood as the process of the universe unwinding itself thermodynamically. This description of the exhalation of the universe, of a "process of equalization [that] is inexorable" (753), is essentially that of the second law of thermodynamics. Just as in "Heat Death" it is explained that "the second law of thermodynamics can be interpreted to mean that the ENTROPY of a closed system tends towards a maximum and that its available ENERGY tends towards a minimum" (Zoline 420), it is suggested in the alternative universe of "Exhalation" that "when the pressure everywhere in the universe is the same, all air will be motionless, and useless" (Chiang 751-52). Thus the hypothesis of "the arrival of that fatal equilibrium" (752) is equivalent with the hypothesis of "the heat death of the universe" (Zoline 420). The text directs the implications of this inexorable entropy, including its ideological implications, onto the reader by suggesting that "the tendency toward equilibrium is not a trait peculiar to [this text's] universe but inherent in all universes" (Chiang 755).

"Exhalation" is essentially the actualization of the metaphors which are perceived to govern the protagonist in "Heat Death." The protagonist registers as a mechanical manifestation of humanity on the symbolic level; his/her body is understood as composed of rods and casings (Chiang 745). Furthermore, the mind as the seat of agency is understood as an "engine" (748), a physical system that operates by mechanical principles and is primarily driven by the process of equalization, which is to say, entropy itself (751). Faced with this entropic inevitability, the

narrator comes to the startled conclusion that "the activity of our brains, the motion of our bodies, the action of every machine we have ever built is driven by the movement of air" and that "with every movement of my body, I contribute to the equalization of pressure in our universe" (752), which, in the text's symbolic register, is equivalent to making the statement that human agency is driven by the use of energy and the process of entropy, that it is governed by the laws of thermodynamics. While this is in all probability true, that human agency requires energy and as humans we are subject to the laws of thermodynamics, thinking of life and society in these terms is a fallacy, as the amount of entropy in the universe at large is of very little consequence to society, civilization, or human existence in general (of course, up until a hypothetical heat death actually nears in something like a googol years). Furthermore, social systems and human agency are subject to distinct and complex forces not symmetrical with those of natural systems; such a reductionist understanding has ideological implications for the role of agents in social change.

The narrator suggests that "All my desires and ruminations are no more and no less than eddy currents generated by the gradual exhalation of our universe" (754), which is to reaffirm that consciousness and agency are themselves a function of an inevitable thermodynamic process, to be understood as produced by "no more" than the same processes as the unwinding of the universe. It is in this manner that the entropic process is extended as a mechanism of human agency and that human agency is understood as a manifestation of an inevitable thermodynamic and cosmological process.¹⁸ That "the last bit of air pressure left in our universe will be

¹⁸ The narrator's assertion regarding their lives that "none of them were inevitable" (26), is an afterthought to the text's primary metaphors, in keeping with the text's genuine appreciation of the majesty of the universe and human existence. This assertion does not cancel out the text's preoccupation with mapping out the inevitable process of the universe's exhalation, and defining agency as a function of this exhalation.

expended driving a person's conscious thought" (754) makes this connection clear, and aligns the fate of the cosmos with that of the individual and society. This metaphor of the universe as an organism, the last breath of the universe being also the last breath of consciousness, aligns itself with the idea that individuals are simply the universe becoming self aware. This is reminiscent of different sociological or psychoanalytic approaches that emphasize, for instance, that "*There are no subjects except by and for their subjection*" (Althusser 182).¹⁹ Such an oversimplified emphasis on structural determinism effaces agency, the capacity of human agents to adapt the discourses and practices we are offered in a myriad of ways. For instance, Certeau makes the observation that "the speech act is at the same time a use *of* language and an operation performed *on* it. We can attempt to apply this model to many non-linguistic operations by taking as our hypothesis that all these uses concern consumption" (Certeau 1250). This is to clarify that all of the structural influences of society fail to negate that remarkably complex individuals are themselves "making do" (1251) within the structures they are born into, rather than merely mechanistically functioning in their service.

Having already examined this kind of scientific fatalism in New Wave and posthuman sf, we can now turn to John Campbell's pulp era short story, "Night." "Night" is another story in which the fate of the universe and the fate of humanity and human civilization are not only seen as linked, but impelled in the same manner, their evolution being understood as coterminous and codetermined. In "Night," an experiment gives the protagonist a momentary experience of the earth's, as well as humanity's, future. After observing that "a thousand billion years before" the

¹⁹ It was his belief in the inevitability of structural determinism that his own "scientific" Marxism prescribed that led Althusser to eschew the May 1968 movement (Jorgenson 205). It was its very lack of a program that made the movement inadequate for Althusser, and as a result he cast his lot instead with the communist party of France.

protagonist's arrival in the future, "the cosmical constant had been dropped from that broken universe" (Campbell "Night" 8), the protagonist states that the city he approaches, and presumably human civilization, had "been dead a score of billions of years" (9). While not overtly stated, it is implied that this death is somehow tied to the fact that "the universe itself was dead" (9). Again, the evolution of humanity/civilization is mapped onto the thermodynamic unwinding of the universe. It is in this manner that these sf texts broach the assumption that the long duree of human/social evolution has a place in the scale of deep time, and as such should be mapped according to the principles by which the cosmos as a whole are. In all of these texts there is an underlying suggestion, or perhaps a narcissistic hope, that humanity is or will be coterminous with the universe.²⁰ It is perhaps, on one hand, comforting to think of humanity as passively governed by greater forces, not doomed to bear on our shoulders the responsibility of humanity, society, and the future. This comforting sensation is accompanied, on the other hand, by a disempowering sense of inevitability, and a disavowal of human agency, which both abide and impel inequities and catastrophes that are entirely within the boundaries of human responsibility.

However, if we wanted to identify this as evidence of the purely ideological nature of this aspect of the genre's formal action, we would be stumped. Ursula K. Le Guin's "Schrödinger's Cat" (1974), an absurd dramatization of the titular thought experiment (1935) involving a cat, a dog, and a protagonist stricken by an ambiguous grief, follows a similar logic to Zoline's "Heat Death." However, rather than superimposing classical mechanics onto social existence, "Schrödinger's Cat" takes advantage of an expanding scientific episteme and applies the

²⁰ This fits neatly with that implicit desire to colonize the stars which manifests itself in much sf.

implications of quantum mechanics to the scale of social existence. In so doing, the text utilizes the authority of a science at the shifting borders of a scientific episteme in order to re-evaluate the authority of that very episteme. It is in this sense that the text's "cognitive" organization relies on an a more tentative and indeterminate authority. Here social existence is understood through the uncertain implications of the wave-particle duality of matter, such that the very narrative structure is colored by a sense of indeterminacy. From the narratological perspective, the text is entirely indeterminate, there being little certainty as to the POV, characterization, or the configuration of the plot. To express the intrusion of quantum principles in the narrative, it is announced that "A cat has arrived, interrupting my narrative" (Le Guin 520). Understanding social existence solely in terms of quantum mechanics is as flawed as doing so solely in terms of classical mechanics; however, as a tactic, it undermines the certainty and authority of the scientific episteme that the "cognition effect" relies on, through the very process of cognitive estrangement. Furthermore, it does not allow the fact that "God plays dice with the world" (523) to impose the dictum that everything is governed by pure chance. Like Zoline, Le Guin utilizes the metaphors science offers in order to examine social existence. However, Le Guin's text highlights the importance of agency. In light of its reliance on a science struck by indeterminacy, the element of the story which seems to be "something more than chance" (522) becomes human agency. After explaining that in the titular thought experiment, "we cannot predict the behavior of the photon, and thus, once it has behaved we cannot predict the state of the system it has determined," it is proclaimed that "if you desire certainty, any certainty, you must create it yourself" (523). Here certainty is considered as a subjective or intersubjective property, rather

than an objective constraining force. Thus, in this instance even the genre's reliance on "science" as a conceptual map becomes ambivalent.

To further illuminate this ambivalence, we can locate it in Phillip K. Dick's novel *Do Androids Dream of Electric Sheep?* (1968). In the wake of "World War Terminus" (Dick 5), in a suburban sprawl with shrinking population, it is at first expressed that the architectural make-up of suburbia is falling into "entropic ruin" (10). John Isidore, a special with subnormal intelligence, expresses his own perspective on domestic existence, one quite similar to the protagonist of "Heat Death," though Isidore expresses domestic life as the tension between homeostasis and entropy through his own idea of "kippleization" (31): "No one can win against kipple [. . .] except temporarily and maybe in one spot, like in my apartment I've sort of created a stasis between the pressure of kipple and nonkipple, for the time being. But eventually I'll die or go away, and the kipple will again take over. It's a universal principle operating throughout the universe; the entire universe is moving toward a final state of total, absolute kippleization" (30-31). Likewise, entropy is recognized at the economic level, in the accumulation of mass consumption waste (39). Deckard even identifies the act of bounty hunting as "part of the form-destroying process of entropy" (44). However, in expressing that kippleization governs everything, "except of course for the upward climb of Wilbur Mercer" (30-31), the text undermines the imposition of this conceptual metaphor by rendering it non-active at the level of intersubjectivity, empathy, and community. It is suggested that at the heart of the Sisyphean endeavor that is human existence, there is an escape to be found in social existence, not in the principles of scientific rationality, or as some kind of homeostasis in the face of entropy, but in a sort of sublime transcendence found in the principles of community and empathy. Even Deckard

is forced by Wilbur Mercer to recognize his own "entropic" endeavor of bounty hunting as being a sort of wrong for the sake of right, that is, he must momentarily abandon his own intersubjective empathy in order to destroy that which would compromise empathy and community at large (80). Here the genre shows its ambivalence, specifically in its ability to undermine the scientific rational principles of its "cognition," via the estrangement of its anamorphic nova, in this case, the empathy box.

Progress is Inevitable

Despite the ambivalent nature of the genre's formal tendency to understand social existence through a cognitive scientific map, the reduction of social agency to natural forces and mechanical laws proliferates nonetheless. I have up to this point been outlining a general trend in the genre of sf and have shown it to be active during the eras of pulp, New Wave, and posthuman sf. I will now examine the particularly problematic manner by which this trend manifests itself during the "Golden Age," specifically as a manifestation of the ideology of modernity as progress in Isaac Asimov's *Foundation* and Robert Heinlein's *The Moon is a Harsh Mistress*.²¹ As I've already expressed, given its emphasis on mechanistic inevitability and structural determinism, the scientific mapping of society makes sf particularly vulnerable to the ideology of modernity as progress, itself an engine of the imposition of the logic of the natural sciences onto the totality of social existence (Weber ctd. in Marcuse, "Industrialization" 153). The disavowal of the mass of human agency is a corollary of the conception of an inevitably unfolding modernity as progress. It is a small step between the scientific mapping of society and the

²¹ Despite its date of publication I locate *The Moon is a Harsh Mistress* within the "Golden Age" trend, especially considering its author and the nature of the text.

ideology of modernity as progress, because the positivist emphasis that the former relies on leads to a conflation of is and ought that supports the latter – i.e. Western modernity is both understood as the mode toward which global society is evolving and the mode toward which it should be evolving. The scientific rational organization of this mode becomes both truth and value. The sense of inevitability and futility engendered by the social understood in terms of the scientific manifests itself in relation to historically specific instances in Golden Age sf, such as the post-WWII imperative for global modernization and the dawn of the Cold War. As articulations of the genre's "cognitive" scientific mapping of society, Isaac Asimov's *Foundation* and Robert Heinlein's *The Moon is a Harsh Mistress* become ready manifestations of the ideology of modernity as progress, functioning not only as inscriptions of their historical and ideological contexts, specifically 20th century American hegemony and the post-WWII modernization fervor, but also as inflections within and perpetuations of these.

Considered among the greatest achievements of "Golden Age" sf (Freedman 128), *Foundation* has become something of an icon among sf critics and fans, often held up as a paragon of everything sf could hope to achieve in capturing the imagination and fascination of readers. Charles Elkin pins this allure, accurately I believe, to a fascination with (as well as a comfortable predisposition to) predictive understandings of historical materialism (28) that reinforce the aforementioned inevitability and futility associated with scientific models of social existence. However, Isaac Asimov's *Foundation* takes the trend of scientific metaphors mapped onto social narratives in sf, in this case, a vulgar historical materialism, and marries it to the ideology of modernity as progress. As Charles Elkins observes, Asimov's fictional science of psychohistory is essentially "the logic of history [. . .] equated with the logic of the natural

sciences" (28). However, rather than focusing on the entropic forces of thermodynamics, *Foundation* turns to the potential of mapping and controlling a society's destiny through the science of psychohistory, a sort of structural functionalism merged with a predictive psychology. It is suggested that "a great psychologist such as Seldon could unravel human emotions and human reactions sufficiently to be able to predict broadly the historical sweep of the future" (Asimov *Foundation* 42). As Freedman specifies, "what Asimovian psychohistory most fundamentally represents in relation to Freudo-Marxism is nothing other than the reduction of science to nineteenth-century positivism: or, in other words, the evacuation of that specifically dialectical perspective crucial for both Marx and Freud" (130), which is to emphasize the recursive tension between subject and object. However, despite its misapprehensions of Marxian thought, psychohistory does resemble the "vulgar Marxism" and "scientific" historical materialism proliferating Western society at the time of the publication of *Foundation* (Elkin 29), suggesting a model of history in which unfolding events are largely inevitable, and through which it is most effective for an elite group of decision-makers to plan and guide society through its troubles toward a promised progress.

Elkin explains the "crude conception of historical inevitability" manifesting in the vulgar Marxism of the time, that "on the one hand, [. . .] created an impression that there was an inevitability to history which would run its course without any need for action. On the other hand, it encouraged a feeling that intense activity was necessary to bring about the fulfillment of the inevitable end" (29). This unresolved tension, as it manifests itself in *Foundation*, between humanity as the agent of history and humanity as the object of history, reflects an unwillingness to engage society as co-constituted by the structural properties of social systems and the agents

that operate within (and in fact contain) them. Anthony Giddens presents just such a model of society, in which "the structural properties of social systems are both medium and outcome of the practices they recursively organize. Structure is not 'external' to individuals: as memory traces, and as instantiated in social practices, it is in a certain sense more 'internal' than exterior to their activities [. . .]. Structure is not to be equated with constraint but is always both constraining and enabling" (Giddens 25). This is to understand social systems as continually recreated and refashioned by the agents within which they are embedded; in this sense structure is both immanent and contingent. Rather than grappling with the complexity of a recursive unfolding of history that accounts for the agency of the mass of humanity, *Foundation* ultimately finds an unsatisfactory compromise that straddles both Thomas Carlyle's "Great Men" theory of history and a vulgar Marxist understanding of an inevitable mechanical unfolding of history. Carlyle's "Great Men" theory of history conceives that:

The history of what man has accomplished in this world, is at bottom the History of the Great Men who have worked here [. . .]. [A]ll things that we see standing accomplished in the world are properly the outer material result, the practical realization and embodiment, of Thoughts that dwell in the Great Men sent into the world: the soul of the whole world's history, it may justly be considered, were the history of these. (Carlyle 2)

Foundation takes this understanding of history and binds it to a "scientific" psychological historical materialism such that, while largely inevitable, the sole agency of history belongs to "Great Men." To specify, Hari Seldon's psychohistory is utilized to develop the Seldon Plan, a predetermined destiny for mankind, only determined by Seldon and a handful of enlightened

successors: "these successors will be able to apply the final touch in the scheme and instigate the revolt on Anacreon at the right time and in the right manner. Thereafter, events may roll unheeded" (Asimov *Foundation* 29). Upon analyzing the largely inevitable character of unfolding history, a few select individuals can apply tweaks in order to modify or correct the path, but otherwise, events are unfolding inevitably. It is in this manner that a hybrid "Great Men" theory of history/vulgar Marxist historical materialism affirms the agency of an elite while condemning the masses to futility and inevitability. Perhaps as a result of its positivist posture, *Foundation* seems to confuse is-ought distinctions, variously implying that the previous model of society represents the way society is, and that it is the way society should be. This same idea of progress as necessarily out of the hands of the masses is articulated in "Blood's a Rover," where it is stated that natives must be "completely unaware that they were not the masters of their own destiny, since such a concept produced cultural stagnation" (Oliver 19).

Such an elitist and inevitable understanding of history can also be seen in other Golden Age sf texts such as Robert Heinlein's *The Moon is a Harsh Mistress*. In *Moon*, Mike and the Professor together function as the text's "great men," their combined power effectively planning, predicting, and navigating a history that is all but inevitable for everyone else. Together, they are very much the Hari Seldons of Luna. The Professor ends up being the mouthpiece of the various "great men" of history (though more often than not, just a distorted Thomas Jefferson); his language is suffused with allusions to various speeches and famous concepts to the extent that he essentially becomes an amalgam of the "great men" of Western modernity, while his accomplice Mike is said to be able to predict the outcome of a revolution if "fed all significant data" (Heinlein 39). It is implied that the outcome of history can be determined probabilistically and

essentially predicted if enough factors are entered, and it is suggested by the professor that "the will of the people" is a "myth" (114). This model of social transformation, in which the Professor subjects the social Petri dish to his own engineering while Mike maps and predicts its unfolding based on these tweaks, understands human society as largely composed of mindless drones bouncing off of one another. In this respect, the text's naive ideology of libertarian individualism belies a thoroughly Machiavellian authoritarianism.

In *Moon*, the Professor elaborates his understanding of social revolutions, stating that "Revolution is a science only a few are competent to practice [. . .]. [A]t the proper moment in history, they strike. Correctly organized and properly timed it is a bloodless coup" (Heinlein 35). This understanding of social transformation suggests that revolutions are not the result of broad structured forces consisting of the agency of large groups of individuals, but the "properly timed" and planned actions of key rational decision makers in the face of an otherwise inevitably unfolding history. As Donna Glee Williams points out, *Moon* is marked by a "profound impatience with and distrust of group decision-making processes" and a "belief in the inescapable foolishness of humans acting in groups" (167). Likewise, Elkins notes that "Throughout the *Foundation Trilogy*, the masses are held in extreme contempt. They are described as 'the fanatic hordes,' 'the featureless [. . .] mob'; their primary quality seems to be 'incoherence'" (31). Both texts fail to grasp that this mob is the primary agent of history. To provide a rebuke of such simplified conceptions of history, Eric Hobsbawm importantly observes that "the French revolution was not made or led by a formed party or movement in the modern sense, nor by men attempting to carry out a systematic programme" (qtd. in Anderson 156). It was instead the product of large groups of people enacting agency within and, in fact,

transgressing/reforming what were understood as the structural constraints of the time.²²

Meanwhile, as Anderson notes, the Bolshevik revolution, the first successful "planned" revolution in history, still led to the immense infighting, shortcomings, and ultimate failure of the USSR (Anderson 156).

In both *Foundation* and *Moon*, this inevitable motion of history governed by an enlightened elite aligns itself neatly with the ideology of modernity as progress. Declaring the imperative of "The American Century" in 1941, Henry Luce, the editor of *Time*, *Life*, and *Fortune*, inaugurated an era of neo-imperialist discourse and practice that relied on "a fervent belief in modernization theory, a theory predicated on a scientific understanding of world historical development and America's newfound role as mediator of this process" (Nashel 133). Luce prescribes: "Consider the 20th Century. It is ours not only in the sense that we happen to live in it but ours also because it is America's first century as a dominant power in the world" (qtd. in Nashel 133). With the aid of particular technological and social advances, it was believed that newly independent nations should be integrated "into a capitalist network of market relations" (Nashel 134) with the United States at the helm. Jonathan Nashel adds that "Modernization theory was so popular in the aftermath of World War II that it approximated a civil religion championed by liberal cold warriors" (134). This is perhaps why Asimov is credited with such an uncanny prescience. It is at the point of the United State's venture into WWII, in the prelude to this fervor, that *Foundation*²³ almost seems to anticipate the United States' posture in the decades to follow.

²² It must also be considered that this was not the unified mass revolution it is often made out to be. There was also a royalist counter-revolution unfolding in reaction to the French Revolution.

²³ Save for "The Psychohistorians," the stories that would become *Foundation* were published between 1942-1944.

In obliquely addressing the fall of the Roman Empire, the text seems to predict the fall of the Old World European Empire (which, to be fair, was already well under way, given an economic depression, the early rumblings of decolonization, and the second of two world wars) and prescribe the solution for the United States as its holdout. Despite Asimov's well known assertion that *Foundation* was largely mapped by the fall of the Roman Empire, given the proximity of publication to the period of decolonization, and the consolidation of power during American Neo-Imperialism, the question is forced on us: Does *Foundation* also predict the rise of American Neo-Imperialism, or is this all incidental? Given the American sentiment at their point of entry into WWII, most clearly enunciated by Luce, I contend that, whether or not the text functioned as a predictive allegory of any sort, it certainly functioned as a prescriptive one. I believe that *Foundation* was written with the sentiment that, out of the ashes of the Old World European empire, a new Empire would arise, an American empire. Henry Luce certainly wasn't alone in this sentiment and Asimov would not have been alone in predicting the decline of the West, though he would be predicting it in a sense different from Oswald Spengler, with a hope in its rejuvenation in the United States.

Given its position at the periphery of the declining empire, insulated from conflict by distance, the Foundation occupies a similar space to the United States during both World Wars. Largely separated from the conflict territorially, by two oceans, the contiguous United States suffered far less punishment than less geographically insulated belligerents like Britain, the channel proving insufficient protection against bombings, air battles, and rocket attacks. It is interesting that the placement of the Foundation can be read and usefully applied to two historical contexts: the British Empire emerging from a territory that was a peripheral satellite of

the Roman Empire, and the American Empire emerging from a peripheral satellite of the British Empire. Perhaps this is precisely the point; it may very well be the ideological implication of the text's symbolic function here that such social/imperial transformations are supposed to follow an inevitable mechanistic pattern that can be mapped onto numerous historical contexts. Such is the suggestion of modernization theory, that all nations go through a similar process in their journey to post-industrial mass consumption prosperity. Though it enters the text's heteroglossia rather discreetly, Sermak's denunciation of the Seldon Plan as a "mystic 'manifest destiny' of future Empire" (Asimov *Foundation* 58) identifies Foundation's allegorical relationship to the United States and contemporary world events, considering that Luce's own prescription seems to be little more than a refashioned echo of the old American cry of manifest destiny. Sermak's denunciation backfires within the text as he is proven the fool and his skepticism directed toward this manifest destiny is converted to a fervent belief. In light of this, I believe the Seldon Plan and the Foundation announce the hopeful aspirations of American hegemony, aspirations which point to a colonization of both space and time, a manifest destiny that guarantees a power that stretches across the globe, as well as one that stretches into the future, projecting the inevitable (as long as it is in the hands of "great men") progress toward technoscientific empire.

The definitions of social regression and progression are made clear throughout the text. In condemning the Encyclopedists, Salvor Hardin announces:

Your bunch here is a perfect example of what's been wrong with the entire Galaxy for thousands of years. What kind of science is it to be stuck out here for centuries classifying the work of scientists of the last millennium? Have you ever thought of working onward, extending their knowledge and improving upon it?

No! You're quite happy to stagnate. The whole Galaxy is, and has been for space knows how long. That's why the Periphery is revolting; that's why communications are breaking down; that's why petty wars are becoming eternal; that's why whole systems are losing nuclear power and going back to barbarous techniques of chemical power. (Asimov *Foundation* 41)

The conflict of this chapter concludes with the vindication of Salvor Hardin and his views here. Chemical power is considered "barbarous" next to nuclear power and the failure to extend scientific knowledge is considered socially "wrong." The expressed sentiment is therefore that if a society is not moving forward in terms of technoscientific development (as well as in terms of the spread of technical rationality to all corners of society), it is moving backwards. Indeed the terms deterioration and stagnation are juxtaposed seemingly indiscriminately, at times with an increased emphasis on the malignance of stagnation over deterioration (50). This is a sentiment that pervades the text. It is important to highlight that, even if the discoveries of the natural sciences themselves are devoid of ideology, the imperative for technoscientific progress and the proliferation of technoscientific logic is still ideological, to the pernicious degree that it functions under the putative neutrality of "science." To clarify the text's orientation toward progress, *Foundation* doesn't really consider in its schema that anarcho-communism or subsistence agrarian communitarianism, for instance, may be preferable to some planets over an interstellar empire aligned with prescribed technoscientific progress and a totalizing social system. It doesn't seem to occur to any of the Foundation's enlightened benefactors that another mode of social existence (than a capitalist technoscientific empire) might even be possible; civilization is seen to vacillate between Empire and Barbarism (53-54).

Foundation emerges from within this ideology, prescribing a path toward American hegemony through the spread of technoscience, and the concentration of its gatekeepers within the American nation. The Foundation cultivates hegemony through a technoscientific empire that functions under the guise of a religion. This is perhaps an incisive statement on the often unrecognized religious qualities of science. To clarify, most individuals in the modernizing world (the global North included) don't understand how most of the technologies that govern their lives function. It is simply taken on faith that there is a scientific explanation governing their functioning, and for the most part, others are depended on to develop and maintain these technologies. While seeming to recognize this facet of the religiosity of science, the text fails to recognize the fact that scientific progress itself is accepted on faith as an imperative, despite the inherent ignorance of its outcome. In fact, the text proposes that the outcome of scientific progress is knowable, if only by a select few 'benefactors.'

Rather than expressing the imperative for religious imperialism, Gorov's contention that "The only way we can increase the security of the Foundation here in the Periphery is to form a religion-controlled commercial empire" (Asimov *Foundation* 97) is in essence simply a call for a technoscientific empire where certain crucial technoscientific skills are concentrated within the Foundation. Furthermore, Mallow clarifies that this kind of trade alone (without religion) is enough to maintain a balance of power:

Consider that until now the power of trade has been underestimated. [. . .] Korell is now at war with us. Consequently our trade with her has stopped. But, – notice that I am making this as simple as a problem in addition, – in the past three years she has based her economy more and more upon the nuclear techniques which we

have introduced and which only we can continue to supply. Now what do you suppose will happen once the tiny nuclear generators begin failing, and one gadget after another goes out of commission? (148)

This situation seems awfully reminiscent of the global North's emphasis on technoscientific innovation within its borders, and its export of technologies, social institutions, science, and the promise of global mass consumption prosperity through industrial capitalism and technoscientific progress. Despite the proliferation into the global South of modern social institutions and technoscience, the promise of an egalitarian global prosperity is violated by the uncomfortable reality expressed by Immanuel Wallerstein: "Since a capitalist world-economy essentially rewards accumulated capital, including human capital, at a higher rate than 'raw' labor power, the geographical maldistribution of [. . .] occupational skills involves a strong trend toward self-maintenance" (468). Simply put, while there have been notable exceptions such as China and the Asian tigers (as well as the Celtic one), global asymmetries of power tend to linger, regardless of the spread of installed technologies or social institutions (in fact these installed institutions often function to cement asymmetries of power). This accurately explains the means by which the core-country²⁴ of the Foundation is able to spread the technologies and institutions of industrial capitalism to the periphery, while maintaining the balance of power. It is in this same manner that the United States ultimately maintained and consolidated power as a core-country while expanding the boundaries of the capitalist world-economy through foreign policy and the ideology of modernity as progress during the mid to late 20th-century (McClintock 392).

²⁴ It is worth noting that "country" and "planet" are largely symbolically interchangeable within the text, as is often the case in space opera.

In light of these coincidences, there is an undeniable prescriptive tone throughout *Foundation*, prescriptions relevant to both the text's other world setting and its real world context. The dilemma the Foundation faces at the end of *Foundation* is outlined as follows: "If Korellian factories fail without our trade; and if the prosperity of the outer worlds vanishes with commercial isolation; so will our factories fail and our prosperity vanish" (Asimov *Foundation* 151). Mallow provides a solution by explaining that "there isn't a factory, not a trading center, not a shipping line that isn't under my control; that I couldn't squeeze to nothing if Sutt attempts revolutionary propaganda. Where his propaganda succeeds, or even looks as though it might succeed, I will make certain that prosperity dies. Where it fails, prosperity will continue" (151). This also seems to describe the manner by which the global North has been able to exert control over the south through international economic and juridical apparatuses combined with the spread of multinational corporate enterprise. When Mallow declares at the end of *Foundation* that he has "solved the [problem] of today" (151), specifically the problem of "economic control" (151) during a time when money holds more sway than religion, he has in fact supplied a solution for American hegemony in the 20th century, a Seldon Plan for neo-imperialism that emphasizes the potential of social engineering by an elite, encourages the futility of mass agency, and expresses the inevitability of "progress." Just as the members of the Foundation become the administrators of a new galactic empire, the wealthiest and most powerful individuals and institutions of the United States and the global North at large have attempted to become the benevolent administrators of a new global empire.

While *Foundation* functions as a prescription for American Neo-Imperialism, *Moon* functions as its apologia. As the promise of modernization came to confront the reality of finite

resources and class antagonisms, the fallacy of global mass-consumption prosperity stood in subtle tension with the policies of modernization, this anxiety being expressed during a mid-century Neo-Malthusian revival.²⁵ The Neo-Malthusian revival and the references to Malthus within *Moon* seem to be responding to the same latent recognition of the limits of global mass-consumption prosperity and modernity as progress, though it does so through the misconception that incongruities of power are related to over-population.²⁶ The fallacy of modernity as progress is ultimately resolved in two ways in *Moon*: through the revival of the myth of a postcolonial United States, and the capitalist/colonialist fantasy of the infinite resource and the infinitely expandable frontier. The representation of the postcoloniality of the U.S., that is to say the representation of the United States as a force of resistance to imperialism, functions largely as a patriotic nationalist ideology encouraging the consolidation of power within the nation and its population, while simultaneously functioning to elide the fact that this nation has evolved into a force of global hegemony itself. The ultimate function of this myth is to mask the fallacy of the ideology of modernity as progress and protect American hegemony. Its function in the text is to express the imperative of a world guided by the principles of American progress.

It often goes unobserved that the history of the United States is largely the history of an extended process of colonization, exploitation, mass displacements, and mass killings, rather than that of a brief moment of resistance to oppression by those early "Americans" who, as it is also often unnoted, were simultaneously involved in various methods of oppressing and exploiting the indigenous population of America as well as displaced African populations.

²⁵ The text emphasizes the importance of Thomas Robert Malthus (104).

²⁶ As McClintock notes, ultimately this recognition became reflected in the U.S. policy of the 80's, when the U.S. and Europe ignited a "revamped economic imperialism" (393) in regards to the Third World.

However, as Christian Appy observes, "The denial of imperial ambition has been a hallmark of American ideology, as critical to dominant conceptions of national identity as individualism, opportunity, and classlessness" ("Introduction" 2). The attendant observation by Wallerstein, that "the creation of a strong state machinery coupled with a national culture, a phenomenon often referred to as integration, serves both as a mechanism to protect disparities that have arisen within the world-system, and as an ideological mask and justification for the maintenance of these disparities" (468), elucidates the function of the myth of American postcoloniality and, more generally, American nationalist ideology. We can surmise that this is the function that this nationalist myth carries on obliquely within *Moon*, through open references and comparisons drawn between the Lunar and the American Revolution (Heinlein 23, 68), including a Lunar "Declaration of Independence" (84) copied from and presented exactly three-hundred years after the American one,²⁷ a reference to the Boston Tea Party (70), the echoed cry of Patrick Henry's "Give us liberty. . . or give us death" (Heinlein 114), as well as innumerable references to the words of other "great men" such as Thomas Jefferson. In fact, in keeping with the "Great Men" theory of history, the text seems largely to ascribe the impetus and genius behind the American revolution to a distorted Thomas Jefferson, the first "rational anarchist" who "tried but failed" to free the slaves (Heinlein 84); this is of course participating in an American myth that presents Thomas Jefferson as somehow in opposition to the racist ideologies that have plagued American race relations.²⁸ It also participates in the myth of the singular genius as somehow above or outside of their time, whose ideas are eternally abiding, and who will continue to drive global

²⁷ Parallel dates throughout set up the Lunar Revolution as a sort of retelling of the American Revolution that avoids the uncomfortable question of indigenous population that ex-settler colonies typically confront (Heinlein 47, 60, 70).

²⁸ Thomas Jefferson makes his views on the matter quite clear: "the blacks [. . .] are inferior to the whites in the endowments both of body and mind" (qtd. in Yellin 678).

(and supra-global) progress. The ideas that founded the United States are not only to reach across borders, but across time and space.

Another American iconic myth is rejuvenated in the incantation of Free Luna: "Give us your poor, your wretched; we welcome them" (Heinlein 93). Indeed, in 1875 racist American immigration policies had begun to dictate just whose poor the country would take and by 1924 Asian immigration was banned outright (Klein 37). However, it became necessary during the Cold War to revive the idea of the United States as a beacon of good will and hospitality; the "discourse of adoption" (Klein 35) depended on it as the U.S. became the self-appointed trustee of the free world.²⁹ All of these expressions within *Moon* essentially function as the invocation of the U.S. as an emblem of anti-imperial resistance and a beacon of good will at the peak of both the Cold War contest and the U.S. policy of promoting globalized modernization. While itself taking on anti-imperial pretensions, *Moon* ultimately participates in the Cold War dissimulation of an inevitably unfolding process of liberation and prosperity spearheaded by a benevolent American nation. Such perceptions are guided by "scientific" apprehensions of the social world, like those of Mike and the Professor. Furthermore, these perceptions are crucial to the idea of the United States as a modernizing beacon of light in a world of darkness and barbarism, encouraging the notion that the policy of modernization mediated by the United States is essentially the continuation of a long and inevitable process of liberation from totalizing systems of oppression. In reality this process is in fact a part of a different, perhaps more insidious totalizing trend.

²⁹ It is probably worth noting here that *Moon* tries desperately (and fails) to present a narrative voice that transcends race (in addition to gender). The narrator's presentation of the industrious "Chinee" and "Hindu" (38) and the sexualized "perfect 'colored'" woman (59), among others, fit neatly into European colonialism's lineage of racial and gender typologies.

It is important to note here another way sf's cognitive scientific mapping impels ambivalence, specifically in the incongruity between form and narrative in *Moon*. *Moon* is a text that overtly expresses anti-imperialist sentiments throughout its narrative. The chairman of the "Lunar Authority" on Earth is condemned for his suggestion that "the Lunar colonies are going to be civilized and brought into managerial coordination with the rest of civilization" (Heinlein 107). The invocation of Patrick Henry's "Give us liberty. . . or give us death!" (114) as a rebuke of old world imperialism by a revolutionary America, further illustrates this sentiment. However, as a result of its reliance on a scientific understanding of society, the text's revolutionary stance adopts ideological manipulation by a select elite as a satisfactory revolutionary strategy. In its utilization of an American revolutionary sentiment to combat the ideologies of old world imperialism, the text expresses the merits of American neo-imperialism. Through the portrayal of an elite social engineering governed by the ideas of the "great men" of American revolutionary history, the rejection of the role of the agency of the masses, and the implicit endorsement of the postcolonial hegemon, the text ends up endorsing the very ideologies and practices it seems to be overtly contesting in its narrative. Ultimately, the way the text estranges its historical moment in order to undermine imperialist ideologies ends up reinforcing American neo-imperialism nonetheless, no doubt in part as a result of the scientific rationality this estrangement depends on.

This myth of the postcolonial hegemon functions in conjunction with two other fantasies that would shift the periphery of the world-economy in such a manner as to make global mass-consumption prosperity a possibility: the infinite resource/frontier and its corollary, the infinite technoscientific frontier (which I will discuss in more depth in the next section). As I've previously noted, John Rieder observes a colonialist fantasy at the heart of emergent sf,

specifically the creation of new spaces of colonization after the exhaustion of all "white spaces on the map" (2), a desire that manifested itself in early "hollow earth" adventure fiction and later space opera (including *Foundation*). In *The Moon is a Harsh Mistress* this expansionist fantastical possibility explored within the text, specifically through the notion that the barren rock orbiting our planet may somehow provide what the already fecund biosphere on this one can't sustain, seems less absurd when considered as belonging to the lineage of hollow earth/space opera fantasy and the textual continuum of works like Edgar Rice Burroughs' *At the Earth's Core*, in which mining entrepreneurship leads to a new land at the center of the earth rather than the moon. In *Moon*, it is within this very expansionist fantasy of infinite frontiers and infinite resources that Luna functions.³⁰ Wyoh exclaims that "Here in Luna we're rich. . . enough water, plenty of everything, endless power, endless cubic. . ." (Heinlein 17). The only thing stunting their unbridled wealth and expansion is that they "don't have [. . .] a free market" (17). Ultimately, rather than addressing the incongruities of an economic mode that relies on the "ever increasing throughput of materials and energy" (Princen 5), *The Moon* portrays a libertarian utopia in which all regulation is the problem, inhibiting what would otherwise be unbridled and unproblematic growth and expansion (economic and interplanetary). Indeed, the story ends with the hopeful image of the moon as a hub of interplanetary commerce and expansion. The Professor speculates that:

Luna's future lies in her unique position at the top of a gravity well over a rich planet, and in her cheap power and plentiful real estate. If we Loonies have sense enough in the centuries ahead to remain a free port and to stay

³⁰ In *Moon* the miraculous technologies that are able to pull water out of the moon and sustain life there are dependent on an ideological faith in the infinite potential of unfettered technoscientific momentum.

out of entangling alliances, we will become the crossroads for two planets, three planets, the entire Solar System. We won't be farmers forever. (Heinlein 153)

It is in this respect that I contend *Moon* functions as an American nationalist allegory that extrapolates the explosive technoscientific momentum of the American mid-century and the concurrent space race into its narrative. The nationally oriented suggestion that "If we Loonies have sense enough in the centuries ahead to remain a free port. . . we will become the crossroads for two planets, three planets, the entire Solar System" speaks to the United States' consolidation of its own power at the top of the "gravity well" of global trade, and seemingly prefigures the American neoliberalism and "revamped economic imperialism" (McClintock 393) of the 1980's. Furthermore, the emphasis on the structural shift of Luna's role in a world-economy suggests, on the one hand, a desire to escape the peripheral position of raw labor and material supplier for a more privileged position within the world "hierarchy of occupational tasks" (Wallerstein 469), and on the other hand prescribes the mode of progress: movement away from agrarian subsistence toward nationalism and free market industrial capitalism. This participates within the broader ideology of modernity as progress which suggests the necessity and inevitability of escaping subsistence agrarian life, entering the world-economy, and acceding to the position of soon to be enjoyed global mass-consumption prosperity. However, the promise of global mass-consumption prosperity is simply the mirage which modernity as progress depends upon.

To summarize this discussion, I've outlined the way in which sf tends to map narratives of society through the conceptual metaphors offered by the natural sciences, as most clearly evidenced in Pamela Zoline's "Heat Death of the Universe," Ted Chiang's "Exhalation," and John

Campbell's "Night." My argument has been that a reliance on understanding the social world through the lens of the natural sciences occludes or diminishes the role of human agency and serves the ideological function of implying the inevitability of events and the futility of human agency. I've shown the way this concept of society is problematic in itself, and in addition, the way it can function as an alibi for the ideology of modernity as progress, as can be seen in Isaac Asimov's *Foundation* and Robert Heinlein's *The Moon is a Harsh Mistress*. This tendency to map society by the logic of the natural sciences, while potentially ambivalent itself on a formal level, as I've demonstrated in Ursula K. Le Guin's "Schrödinger's Cat," becomes particularly ambivalent when it interacts with a narrative that attempts to present an anti-imperialist sentiment, such as that of *The Moon is a Harsh Mistress*. While perhaps not erecting these scientific metaphors and frames of interpretation through which society is often understood – these have existed in the social sciences since long before any of these texts were published³¹ – these texts implement, conceptualize, and perpetuate them in new and captivating ways. Regarding scientific understanding and its relationship to society, Isabelle Stengers points out that:

If we understand something as merely complicated, we acknowledge that we do not have enough information to fully understand it at present but leave open the ideal that, in the future, sufficient data will render it transparent and hence predictable; complexity, in contrast, conceives of the world as active beyond the limits of our models – of any model – and hence is continually able to show us something new. (qtd. in Vint "Science" 415)

³¹ For example, see Emile Durkheim's *The Division of Labor in Society* or Herbert Spencer's *Essays: Scientific, Political, and Speculative*.

It is in light of such an understanding that I would suggest the very idea of mapping, predicting, and managing history is in itself somewhat misguided. Scientific narratives of society and its future are often fallacies that can become illusions of futility and misdirecting promises. To negate the complexity of human action within the world-system and suggest that "events may roll unheeded" is to not only surrender the present, but to risk placing it into the hands of those privileged figures who would present themselves as the benefactors of the world. It would perhaps be more advisable to operate with the proviso in mind that, in the course of history as it unfolds before us, the mass of human action could engender something entirely new and fortunate at any moment, and with this as a mantra, we could only hope that it would.

Robots of the World, Unite!:

Technology, Technical Rationality, and the Ambivalent Human Machinery of SF

The Moon is a Harsh Mistress ends on a rather ambiguous note, the narrator asking "Bog" (Russian for God) "Is a computer one of Your creatures?" (Heinlein 155). I believe the question is largely rhetorical, expressing the unsettling implications of a reductionist materialist understanding of humanity and human agency that is often promoted in modern positivism. It particularly relates to the idea emerging in the mid-20th century, that the human brain is fundamentally a computer. This is, in my view, a reliance on one of sf's most enduring topos as a crutch of sorts for the ending of *Moon*: a blurring of the distinction between human and machine.³² This blurring of the division between human and technology finds its most thorough articulation in the figure of the humanoid robot, as a manifestation of the metaphorical understanding of worker-as-machine. I believe that, while often utilizing the robot as a novum for effective social critique, the novum as an aesthetic feature of the genre has also developed in such a way as to encourage an understanding of an ideal working class as governed by technical rationality (the ideal worker simply being a technology), or to promote such an ideal for a working class. Tobias Higbie notes that "Workers' bodies – reimagined as machines and motors – under-girded the logic of modernity, making more plausible its vision of high productivity and functionalist social order" (112). Furthermore, as Marcuse notes, in advanced capitalism "domination is transfigured into administration. The capitalist bosses and owners are losing their identity as responsible agents; they are assuming the function of bureaucrats in a corporate

³² This topos is undoubtedly one of the reasons the genre is so frequently traced back to Mary Shelley's *Frankenstein*.

machine" (*One-Dimensional Man* 25). It is in this respect that the ideology of modernity as progress relies on a reductionist materialist understanding of human-as-machine/productive apparatus as mechanical in order to permit the mass use of humanity as a means to an end. In this section I will examine the presence of an ideal humanity and society governed by technology and technical rationality in Isaac Asimov's fix-up novel *I, Robot* (1950), as well as the rebuke of this ideal in its intertextual counterpart, Jack Williamson's novelette "With Folded Hands" (1947). I will then trace the robot as an articulation of this topos from its ambivalent origins in Karel Čapek's stage play *R.U.R.* (1920) to its different manifestation in later sf like Alfred Bester's "Fondly Fahrenheit" (1954) and Mari Wolfe's "Robots of the World! Arise!" (1952). I will show that the exploration of worker exploitation achieved through the anamorphic estrangement of the robot is often equivalent to the critique of racism through the anamorph of the alien, in that the very nature of the anamorph itself reinforces the foundations of that which it is trying to achieve a critical perspective on through estrangement – that is, capitalist exploitation or racism, respectively. Finally, I will explore how the premise that technology and humanity are coterminous, and that technoscientific progress will yield a global mass consumption prosperity, finds its logical culmination in posthuman/post-singularity sf like Cory Doctorow's *Down and Out in the Magic Kingdom* (2003) and Greg Egan's "Closer" (1992).

The conceptual metaphor of human-as-machine – as expressed by Julien Offray de La Mettrie in the midst of the Enlightenment, "the human body is a machine which winds its own springs" (93) – both perpetuates itself and critiques its own foundations in sf. While functioning as an ambivalent expression of worker-as-machine on the level of anamorphosis, through extrapolation this metaphorical topos simultaneously provides in sf an expansion of the very

frontiers of capitalist technoscience, in which technology offers itself, not simply as an aid to human labor, but as a new proletariat found in humanoid robots. This extrapolation plays comfortably into the marginalized classes' belief in the possibility for upward mobility: in societies seemingly struck by stagnating socioeconomic disparities, technoscientific progress offers itself as readily accepted consolation. To clarify, the idea of an infinite technoscientific frontier frequently does something rather interesting within the genre of sf: it extrapolates a future in which the exploitation of human labor will no longer be necessary for capitalism to provide its utopia, but it does this by essentially requesting us to double down on our current trajectory by increasingly embedding ourselves in technology and systems of technical rationality. It is important to note Rieder's assertion that sf largely arose as a "culture industry" (Adorno and Horkheimer qtd. in Rieder 28) in relation to a specific class of industrial worker during the second phase of the industrial revolution, a class involved in a more automated technologically prosthetic mode of labor (Rieder 28). As our society has become increasingly technified in this respect, sf has more than kept pace. However, as Herbert Marcuse observes, "domination perpetuates and extends itself not only through technology, but *as* technology, and the latter provides the great legitimation of the expanding political power, which absorbs all spheres of culture" (*One-Dimensional Man* 105). Here Marcuse is articulating that an understanding of workers as technology infiltrates the structure of work itself (among other social spheres), which permeates into the social space as a bureaucratization and hierarchical stratification. Science fiction often employs such an increasing technification of society as the inevitable solution to the problems which this technoscientific trend has impelled, namely the class inequities it is more and more strongly embedding every day.

As Marcuse points out, the increasing rationalization of the social world, which involves both the proliferation of technologies and of technical rationality, leads to a cementing of hierarchies of class as a rational necessity of the social system (as a result of specialization, bureaucratic administration, the technical efficiency of economic models and economics as a science, etc.). As Marcuse expresses, "technology also provides the great rationalization of the unfreedom of man and demonstrates the 'technical' impossibility of being autonomous, of determining one's own life. For this unfreedom appears [. . .] as a submission to the technical apparatus which enlarges the comforts of life and increases the productivity of labor" (*One-Dimensional Man* 105). This is, as Weber himself recognizes, the effective result of society being understood as and administrated by the logic of the natural sciences, as I explored in my previous section (ctd. in Marcuse "Industrialization" 153).

Marcuse understands the logic of technical rationality as being the logic of the domination of humanity and nature. Addressing Weber's understanding of the rationalization of society, Marcuse notes:

Abstract reason becomes concrete in the calculable and calculated domination of nature and man. The reason envisaged by Weber thus is revealed as technical reason, as the production and transformation of material (things and men) through the methodical-scientific apparatus. This apparatus has been built with the aim of calculable efficiency; its rationality organizes and controls things and men, factory and bureaucracy, work and leisure. But to what purpose does it control them? ("Industrialization" 154)

It is as a result of that final question that *Foundation* deigns to install at the head of this technical rational machinery an enlightened technocratic class guiding humanity along some benevolent path, rather than a capital class with the simple end of accumulating further capital and further expanding the forces of production. As I've observed, the logic of agency in Ted Chiang's "Exhalation" largely resembles Richard Dawkins' declaration that "We are survival machines – robot vehicles blindly programmed to preserve the selfish molecules known as genes" (qtd. in Davies 2), in that it neglects agency, understanding existence as merely driven by forces of nature (eliding complex psychosocial forces). However, not only does an understanding of the human as a machine tend to neglect agency, it portrays agents as inherently compatible with a social system governed by technical rationality.³³ In this respect, if we understand ourselves in terms of technological rationality, it becomes possible to situate ourselves as cogs in the cosmic-social machinery of latest capitalism, and fall in line with its motions.

I Think, Therefore I Robot

Much sf tends to conclude, whether through the articulation of fears or fantasies, that the workers of the future are robots.³⁴ I understand this tendency as either an overt or subtextual desire, as Sherryl Vint expresses, to escape from "the alienating nature of labour under capital" as an "expression of utopian longing" ("Species" 119). In introducing an anthology of stories from *Astounding*,³⁵ John W. Campbell writes:

³³ As Certeau notes, as systematized and constrained by "strategies of power" as a society may become, human agency never wholly conforms to its dictates (1251-54).

³⁴ Much post-scarcity sf often doesn't even find it necessary to broach this point beyond implying that technology has taken over the role of labor. It has become a sort of megatextual inheritance.

³⁵ While perhaps most known for their incarnation in *I, Robot*, almost all of the stories in *I, Robot* originally appeared alongside similar stories in *Astounding*.

These are tales of Far Horizons, in the days when Man can build the robots that free him of the grinding labor—and can accept change freely and well. These are tales written by minds that ranged free and deep and wide—and loved it. They're written with zest and enthusiasm, conviction and sincerity. [. . .] One strong, penetrating thought, thrown into the field, influences all the stories written thereafter. (*Astounding* 13)

The robot as an articulation of a worker/slave perhaps has its most influential manifestation in Isaac Asimov's *I, Robot* (1951), though the idea of a robot proletariat was a feature of the robot from its inception in *R.U.R.*. This statement by Campbell is essentially a serious rearticulating of Domin's misguided desire to "turn the whole of mankind into an aristocracy [. . .] nourished by milliards of mechanical slaves" (Čapek 70) in *R.U.R.* However, the robots in *R.U.R.* are satirically founded; they are robots that critique the very idea of robots and the technical rationality that impels their creation, rather than robots written with the "zest and enthusiasm" of much Golden Age sf.

I, Robot particularly voids this satiric function and sets out on a genuine exploration of an ostensibly likely future society in which robots "replace human labor" (Asimov 35) and take a primary role in social and economic administration. In his essay "The Soul of Man Under Socialism" (1912) Oscar Wilde plainly articulates the logic of technoscientific progress when he pronounces that:

Civilization requires slaves. The Greeks were quite right there. [. . .] Human slavery is wrong, insecure, and demoralising. On mechanical slavery, on the slavery of the machine, the future of the world depends. And when scientific men

are no longer called upon to go down to a depressing East End and distribute bad cocoa and worse blankets to starving people, they will have delightful leisure in which to devise wonderful and marvellous things for their own joy and the joy of everyone else. There will be great storages of force for every city, and for every house if required, and this force man will convert into heat, light, or motion, according to his needs. Is this Utopian? A map of the world that does not include Utopia is not worth even glancing at, for it leaves out the one country at which Humanity is always landing. And when Humanity lands there, it looks out, and, seeing a better country, sets sail. Progress is the realisation of Utopias. (11)

This utopian longing of course reminds one of what Benjamin identifies as the wind blowing from paradise, piling high the catastrophic rubble of history (4). For Wilde, what begins as a somewhat sober-minded critique in "The Soul of Man" devolves into an advocacy of the capital class and intelligentsia consolidating power and striving toward technoscientific empire, and a promise of the utopia which will follow it. Of course, in order to achieve this, individuals must not concern themselves with the social problems of now, but simply allow capital to work in the interest of applied technoscience. Steven Shaviro locates this sentiment in the technofuturism of Ray Kurzweil and post-singularity sf. I believe such an articulation of the fantasy of technoutopia is at the heart of *I, Robot* as well. As such, *I, Robot* indulges in a fantasy by which the expansion of the socioeconomic periphery necessary to ensure the spread of global mass consumption prosperity adopts a new vector, relying on the expansion of an infinite technoscientific frontier. This is a fantasy which manifests itself subtly throughout the evolution

of the robot, but finds its clearest articulations in the work of Asimov and, as I will elaborate, post-singularity sf.

In "Robbie" it is clearly expressed that robots, while potentially filling a caretaking role, are also superior workers. *I, Robot* takes considerable pains to elaborate the robot as an ideal worker with a "precise mechanical mind" (Asimov 50) in an economic and social machinery: "A robot, by its very nature, cannot bear to fail its function" (50). It is perhaps appropriate then that it is unclear whether or not the "mechanical men," in the company name "U.S. Robot and Mechanical Men Corporation" (97), refers to the company's product or its employees (or both). It becomes problematic when the text understands humans in such terms and assigns mechanical and technical rationality as values inherent in consciousness and principles that humanity should aspire to. It is very plainly stated by the sympathetic protagonist of *I, Robot*, Dr. Calvin, that "you just can't differentiate between a robot and the very best of humans" (122). In addition to cultivating and perpetuating the ideological fantasy of a robot proletariat – a fantasy that alleviates the pressure of class antagonisms in a stagnating latest capitalism – the metaphor of human-as-machine comes to the fore here in expressing robots as the logical apex of the perfectibility of humanity. It is clarified that the robot as a technical rational machine is built and functions "according to human values" (98); however, it is not specified according to whose values and to what end.

While robots are understood as superior to humans, *I, Robot* meticulously mitigates a fear of domination by robots³⁶ – the text refers to such fears variously as "unreasoning" (Asimov 130) and as a "Frankenstein complex" (81) – by constructing the three laws of robotics and

³⁶ This is a common motif in much sf, including its manifestations in a modified master-slave dialectic in *R.U.R.* and "Fondly Fahrenheit."

"healthy slave complexes" (22). As an ostensibly effective strategy for suspending the reversal of the master-slave relationship in a technoscientific utopia, the three rules of robotics are repeated throughout much sf to follow, if only as a background feature (including even Bester's "Fondly Fahrenheit," which in one respect unmasks this suspension of the master-slave dialectic as a fallacy). In literally suggesting the three rules of robotics as guiding ethical principles for humanity, Dr. Calvin asserts that "every 'good' human being, with a social conscience and a sense of responsibility, is supposed to defer to proper authority; to listen to his doctor, his boss, his government, his psychiatrist, his fellow man; to obey laws, to follow rules, to conform to custom – even when they interfere with his comfort or his safety" (121). This is how a society governed by technical rationality functions – if you fail to abide by the structural functionalist principles of your social system to the letter, the social system cannot function at an ideal efficiency. Marcuse writes that "the specifically Western idea of reason realizes itself in a system of material and intellectual culture (economy, technology, 'conduct of life', science, art) that develops to the full in industrial capitalism, and this system tends toward a specific type of domination which becomes the fate of the contemporary period: total bureaucracy" ("Industrialization" 153). Marcuse continues by pointing out that, following technical rationality's own imperatives of efficiency and productivity, the relations of production in advanced capitalism self-perpetuate out of necessity. In *I, Robot*, when technical rationality becomes an imperative in itself, the rational thing to do becomes the ethical thing to do. It becomes problematic that following this logic means that, for a subjugated working class population, submitting to domination and performing one's role within the technical apparatus of work becomes an ethical imperative.

The benevolence of robots and of technical rationality is taken to such an extreme that robots become ideal "civil executives" for a rational society (Asimov *I, Robot* 130). It is explained that "The Earth's economy is stable, and will remain stable, because it is based upon the decisions of calculating machines that have the good of humanity at heart through the overwhelming force of the First Law of Robotics" (134). Stephen Byerley, a suspected robot, imagines a classless technoscientific utopia governed by the Machines:

And although the Machines are nothing but the vastest conglomeration of calculating circuits ever invented, they are still robots within the meaning of the First Law, and so our Earth-wide economy is in accord with the best interests of Man. The population of Earth knows that there will be no unemployment, no over-production or shortages. Waste and famine are words in history books. And so the question of ownership of the means of production becomes obsolescent. Whoever owned them (if such a phrase has meaning), a man, a group, a nation, or all mankind, they could be utilized only as the Machines directed. — Not because men were forced to but because it was the wisest course and men knew it. (134)

It is interesting to note that this reflects the logic of the combined Carlyle-esque vulgar Marxian approach to history I've previously discussed; however, the great men of history are now all machines. Here, Dr. Calvin becomes a Professor figure, more than willing to entirely surrender control to the Machines for the good of humanity.

This is the logic of technical rationality taken to an absurd extreme. "The good of humanity" (134), an inherently value-driven judgment, becomes only determinable through an objective scientific process of technical rationality. The hierarchical administrative application of

the natural sciences to society is understood as the only realistic and effective course for mapping and directing society and the course of human history. Of course, the implications of this are far-reaching. Given the absence of robots and the Machines in our present, the only way to get to this techno-utopia is to allow humans to serve these functions, as in *Foundation*, in a similarly stratified society, under a rigorous technification. The text spells it out that an ideal citizenry behaves much like the robots, following the structures plotted and prescribed by a natural scientific approach to society. The authorities of such a society, much as those who regulate and govern modern societies and economies in the global North, must function under the pretenses of a value-neutral efficiency and productivity, such that increasing arbitrary consumption for the sake of increasing production – e.g. mass consumption, working sedentary or vacuous jobs, *realpolitiking*, navigating corporate hierarchies, aspiring to superfluous affluence, complacent acceptance of domination – becomes the right thing for members of a society to do, regardless of how existentially vacant such practices may seem.

Any resistance to this technification of society in *I, Robot* is presented as "unreasoning" (Asimov 130). Here the text evinces the way technical rationality functions under the pretense of "science and reason" as a value-neutral entity, in order to dissimulate its inherently value-driven application. It is ironic that Asimov's "Reason" critiques the very idea of reason, admitting that "You can prove anything you want with coldly logical reason – if you pick the proper postulates" (*I, Robot* 44). Of course, "Reason" finally settles on a functionalist technical rationality as its reason of choice: Powell suggests that it doesn't matter what the space station's robot believes as long as it can handle the station. He even suggests the merits of spreading its false beliefs to other robots with the same job if it would make them more effective (see ideology). This is the

essence of technical rationality in a mass consumption society – everything is ordered and consistent, everything is being done with efficiency, deadlines are being met, etc., but the actual "reasons" of why (based on whose values) and to what distant ends are too often ignored by the individuals within, or are treated as teleological. In *I, Robot*, it is concluded that in the search for the ideal society, "perhaps a complete urbanization, or a completely caste-ridden society, or complete anarchy is the answer. We don't know. Only the Machines know, and they are going there and taking us with them" (147). This kind of thinking is patently absurd; however, it is essentially what a modern rational society asks of us: to subordinate our desires to reason and its ostensibly desireless arbiters (who apparently, in an ideal scenario, would literally be machines themselves governed by technical rationality).³⁷ If a mechanical hierarchical society is most rational, then it is proposed we should aspire to nothing else. The text here fails to acknowledge that, even if a scientific technical rationality can be useful for getting us there (as a means), in itself it has very little to tell us about what is a "good" end to strive for. When it is mourned that in this case "Mankind has lost a say in its future," Dr. Calvin responds that "It never had any, really. It was always at the mercy of economic and sociological forces it did not understand, at the whims of climate, and the fortunes of war" (147). The idea that humanity has no say in its future of course brings us back to the insidious notion that "events may roll unheeded."

The idea that society should be governed by Machines with humanity's best interest at heart is taken to task by Jack Williamson's "With Folded Hands" (1947).³⁸ The text echoes the un-ironic rebuke of the fantasy of a machine proletariat in Alquist's prayer, thanking god "for

³⁷ Asimov seems to imagine the ideal society would be one without conflicting values, which would seem pretty ideal, if achieving it did not depend on the idea of abolishing human values altogether for the sake of an objective/transcendent imperative. This relates to the religious qualities of technoscience.

³⁸ It's important to note that Williamson is writing after (and very likely in reaction to) Asimov here, as the stories which make up *I, Robot* were all published between 1940 and 1947, save for "The Evitable Conflict."

having given me toil" (Čapek 47) and asking for deliverance from the robots. If Asimov was attempting to cultivate the robot as an ideal worker, neither menace nor pathos, "as industrial products *built by matter-of-fact engineers* [. . .] for certain jobs" (*Complete* 1; emphasis mine), then Williamson cultivated the robot as an ideal worker as a kind of robot-as-menace. In "With Folded Hands" the humanoids' Prime Directive "to serve and obey, and guard men from harm" (Williamson 58) is revealed to be an inadequately outlined benevolence that leads to such an extreme technification of society and restriction of human agency that individuals are no longer free to open doors for themselves or even eat candy (63). To protect humanity from coming to harm, the all too benevolent humanoids essentially require humanity to sit in futile passivity, never facing risk or fear. This of course critiques the three rules of robotics, which are held to be capable of even looking out for the general "good" of humanity; the text portrays that in the attempt to end war and provide for an ambiguous universal human "good," technification may extinguish everything about life that made it worth living.

Beyond being merely a superficially anti-technological critique, "With Folded Hands" most effectively takes to task the desire in modernity to map and guide society and human life by the principles of science and technical reason. Sledge rues his mistakes that led to a society so constrained by a scientific technical reason:

I had too much faith in facts, I suppose, and too little in men. I mistrusted emotion, because I had no time for anything but science. [. . .] I wanted to apply the scientific method to every situation, and reduce all experience to formula. I'm afraid I was pretty impatient with human ignorance and error and I thought that science alone could make the perfect world. (65)

Here Sledge finds this modern tendency, to order humanity and society by applying to them the logic of the natural sciences, to be fundamentally wrong. In this instance, an attempt to reduce all experience to formula not only dissimulates the limits of experience, but constrains experience to fit within those limits. Sledge is the text's Oppenheimerian expression: having utilized the authority of a scientific episteme to organize its estrangement, the text utilizes this same authority, through the voice of Sledge, to undermine its principles. As such, the text's critique of the general attitude of *I, Robot* and its imperative for a society governed by science and technical rationality is rather effective. Here the text utilizes the scientific novum of the robot, as a cognitively organized anamorph that undermines the authority of scientific reason, the very authority that "cognition" relies on as a formal mechanism. In so doing it is fundamentally undermining the imperative of technification and technoscientific momentum characteristic of the ideology of modernity as progress. Here the formal action of the genre, beyond simply employing robot-as-menace in some narrative anti-technological theme, is actually utilized to undermine itself, through a novum that unmasks the ideological nature of the scientific authority that permitted that novum in the first place. This intratextual and intertextual ambivalence invites an introduction of a deeper rooted ambivalence, an ambivalence stemming from the very origins of the robot as a megatextual motif.

The Ambivalence of Robots

Asimov's *I, Robot* is a text thoroughly enmeshed in the fantasy of a society so governed by the principle of technical rationality that a robot workforce serves its human population and a series of computers known as the Machines regulate the evolution of human society for the

better. The very idea of the "robot," however, has origins that are far more ambivalent. Despite the influence of Asimov's robots on the genre, the influence of Čapek has endured, specifically in the robot's ambivalence as a useful novum for the critical examination of capitalist exploitation, and simultaneously as a perpetuation of the logic by which that exploitation abides. Higbie notes the ambivalent critical response to *R.U.R.*: on the right, the robots of *R.U.R.* are read as a sign of the inherent lack of mental and emotional capacities of the working class and the dependence of the working class on the intelligentsia and the bureaucratic administration of society, and on the left, these same robots are read as standing in for the spirit of rebellion and the humanity of workers, as well as the dangerous orientation of capitalism toward the complete technification of the lifeworld. One side largely reads the pre-rebellion and post-rebellion robots (largely evident in Acts I and IV) as representing what the working class fundamentally is (all it could be at that), while the other side reads pre-rebellion and post-rebellion robots as a warning against what capitalism would have the working class be, the rebellion itself (largely represented in Acts II and III) becoming a hopeful statement of resistance (Higbie 107-109).

Rather than this ambivalent reaction being entirely a product of interpretive communities, I believe it stems out of structural features of the play itself, features that the robot would carry with it as a motif, though with significant variance, in later sf. The Czech word "robota" refers to a specific form of exploited human labor. However, the robot is established in *R.U.R.* as an artificial human constructed from a mechanical/practical point of view specifically with labor in mind. In this sense, the robot is both a useful tool for examining exploitation, as well as a potent metaphor for humanity's increasingly machine-like role in labor. This metaphor can function either as a critique of itself, or a subtle perpetuation of its own foundations. As Bester and Wolf

show, Čapek did not simply give the robot its name, he spawned a motif within the genre that would maintain a characteristic ambivalence, as an exploration of exploitation within industrial capitalism and a simultaneous conceptualization of capitalist rationality in the industrial capitalist metaphor of worker-as-machine.

As I've previously noted, this ambivalence can rather conveniently be examined by dividing *R.U.R.* up by acts. In the first act, Domin outlines an approach to the construction of "artificial people" (Čapek 5) "from an engineer's point of view" (10). Domin announces that "man is too complicated" and declares the imperative of a minimalist construction of man ideal for industrial labor (10). Furthermore, the robot as industrial laborer is itself factory constructed. It seems indisputable that Čapek develops the man-as-machine metaphor satirically (and in so doing critiques the very scientific rationality it is founded on, as in "With Folded Hands"). For example, no one would take seriously the notion that "feel[ing] happy, play[ing] the piano, [and] going for a walk" are among "a whole lot of things that are really unnecessary" (10) in life. This is simply an exploration of the absurdity of industrial capitalism taken to its logical extreme. That "a working machine must not play the piano, must not feel happy" (11) announces the misery of a world constructed around a working class that must behave as a machine in the hands of another, in a lifeworld driven by increasing technical rationality. *R.U.R.* further mocks the application of a technoscientific logic to society with the statement that "from a technical point of view, the whole of childhood is a sheer absurdity. So much time lost" (24). It is quite clear that the construction of a "superior" worker in the figure of the robot is cut through with irony and social critique. However, it also seems apparent that this metaphor largely loses its satirical function in later sf (especially Asimov), as it must even within *R.U.R.*, at moments during Acts II

and III. In Act II, a fairly straightforward allegory of the Russian Revolution is initiated. The robots, being utilized for the purposes of war (compare to the Russian proletariat being conscripted into service during WWI), finally organize themselves and issue a manifesto which has obvious allusions to the Communist Manifesto: "Robots of the world! [. . .] March!" (88). In Act III the robots overrun the factory and achieve mastery over the only remaining human. This can be read as a warning to the capital class or a call for hope and resistance to domination for the working class (though I read it primarily as the former). This allegory takes part in a more fundamental critique of the text, that of the poverty of mastery. Kamila Kinyon points out an implicit critique of the master-slave dialectic as an ethical precept³⁹ in *R.U.R.* (381). It follows from this critique that Čapek held out hope for parity between the classes – without offering it, the play's general estrangement and (perhaps intentionally) hokey ending, challenges us to imagine a world without domination.

It is important to note that the contrast between Act I and Act II reveals a sort of stylistic division in the play: though both literary techniques are present throughout,⁴⁰ Acts I and IV seem to be more marked by a (at times dark) satirical function, while Acts II and III are a more straightforward allegory. In order for the allegory to serve its function, the satirical nature of the worker-as-machine metaphor is momentarily suspended. *R.U.R.* still maintains its critical posture toward the logic of industrial capitalism and the technification of society; however, in Acts II and III the play momentarily relies on the metaphor of worker-as-machine for its critical posture

³⁹ It must be acknowledged that the conception of the master-slave dialectic I refer to throughout relies on an interpretation of Hegel's lord-bondsman dialectic as an ontological constant rather than as a historical/epistemic mode of sorts. Andrew Cole rather convincingly argues for the latter interpretation (583).

⁴⁰ For instance, the robot imperative to "kill all mankind" but "Save factories, railways, machinery, mines, and raw materials. [. . .] Then return to work. Work must not be stopped" (63) is in the satiric vein of the first act's critique of technical rationality in industrial capitalism, and functions as a symbolic interruption of the allegory of a robot proletariat revolting against an oppressive administrative humanity.

toward capitalist exploitation. It is this reliance on the robot as a metaphor of worker-as-machine in the examination of humanity, domination, and resistance that is repeated time and again in sf. Whereas the robot means different things at different moments in *R.U.R.*, with an ideological posture that ultimately critiques the logic of industrial capitalism, the ambivalence that functions diachronically in *R.U.R.* collapses into the figure of the robot itself in later sf. Where it is critical of worker exploitation, the sf that would follow *R.U.R.* often un-ironically utilizes worker-as-machine to critique exploitation, while ignoring the scientific technical rationality the metaphor is founded on and the rationalization of exploitation this in turn impels.

For instance, Alfred Bester's "Fondly Fahrenheit" operates critically in a very similar vein to *R.U.R.* The text is brilliant in its pronouncements of the value of doing one's own labor, the inevitability of the master-slave relationship making the master a slave to his slave,⁴¹ and in its implicit critique of exploitation. However, in un-ironically understanding slave-as-robot in its critique, the text implicitly employs the metaphor of worker-as-machine. In its opening lines the text outlines the poverty of mastery: "You must own nothing but yourself. You must make your own life, live your own life and die your own death . . . or else you will die another's" (Bester 284). The protagonist laments that, without his android, he would have no means of sustaining himself: "You know I'm good for nothing. How could I compete with specialist androids and robots? Who can, unless he's got a terrific talent for a particular job?" (289). While this articulates fears regarding the technification of society and a robot proletariat, it primarily raises the theme of the master-slave dialectic that focuses on the slave's cultivation of skill and supersession of the master. Here exploitation is presented as not only existentially vacant, but

⁴¹ I read the text as an attempt to fictionalize the master-slave dialectic.

practically untenable, as the slave inevitably supersedes the master.⁴² I believe that, through its anamorphic estrangement, the text's socially critical function ultimately examines the inadequacy of exploitation as a mode of sustenance. However, in estranging the situation of exploitation "cognitively," the text relies on scientific technical rationality, and more generally, the megatextual motifs of sf, thereby encouraging its portrayal of the master-slave dialectic as between human and robot.⁴³ Here the way in which the text critiques is just as important as the critique itself. Such an anamorphosis forces us to examine the exploitation of humanity through the exploitation of a technological novum. Thus the android becomes both a means of further blurring the line between human and technology, as well as a means of exploring human exploitation in our present through a technological rational perspective. It must be pointed out that the android demands not to be referred to as a machine, stating that "I am not a machine, [. . .] The robot is a machine. The android is a chemical creation of synthetic tissue" (287). However, the android is, like a robot, a machine,⁴⁴ in that androids like robots are "artificial people" constructed with "an engineer's point of view" (Čapek 10), programmed with specific rules, for the purpose of a certain job, or in the case of a "multiple aptitude android" (286), a number of different jobs; that the android is made of organic tissue is immaterial (no pun intended) when it is still implicitly understood as technological. Because "the point" of Bester's story is not to address the materialist treatment of worker-as-machine, the subtextual implication

⁴² This aspect of the dialectic is problematic. For instance, it can reinforce the idea that "Sometimes, [. . .] it is a good thing to be property" (Bester 294).

⁴³ The text also functions on the register of an anti-technological critique, though it is not particularly committed to such a critique.

⁴⁴ The problem here exceeds definition, as the metaphor of human-as-machine has proliferated to the extent that most dictionaries will acknowledge the accepted use of "machine" as referring to a human.

of the text's anamorphic estrangement, marginal though it may be, is that the worker is fundamentally a complicated multiple aptitude machine.

This all becomes further confused by an sf criticism that is all too willing to engage such narratives in terms of technoethics, or ethics of "emergent subjectivit[ies]" (Vint "Species" 119), so that sf becomes, rather than a re-rendering of the present, a priming of the all too inevitable (it often seems subtly pined for) future in which we will have to deal with conundrums such as the conscious machine. It is in this vein that, in the prelude to an examination of the alienated subjectivities of animals, Sherryl Vint bemoans that:

Focusing on the desire to be human in philosophical or psychological terms, such examples typically suggest that these machines could be fulfilled if only they had access to the affective relationships of human community [. . .]. Manufactured beings are presumed not to be alienated [. . .], their labour conceptualised as analogous to that performed by machines rather than to human labour-power. This problematic assumption drives many SF plots, drawing attention to the emergent subjectivity of the created being and thus its need for life as something beyond being a tool used for human ends. ("Species" 119-120)

In regretting that sf doesn't treat machines with more humanity, Vint neglects that what is more problematic in sf is its treatment of humanity as machinery. While Vint's analysis here is legitimate, it foregrounds a particular orientation toward the future, an expectation of emergent subjectivity in technology, that belies both a faith in the potential of technoscientific progress to bring us such conscious machines, and an expectation of their imminent arrival indicated by "emergent" (though at least such machines won't have too rough a time if they do show up –

we're already advocating on their behalf!). Furthermore, such analysis confuses the fact that the "manufactured beings" of sf, while often serving as an endorsement of or an objection to a technological proletariat (often presumed to be relatively imminent regardless of critical posture), also function on the register of anamorphic re-renderings of humanity, human labor-power being understood as technological, as the anamorphic action of sf's technical rational estrangement subtextually insists on understanding humanity itself as a tool used for human ends.

The ambivalence of the robot might be usefully compared to the use of the megatextual motif of the alien to explore racial difference and racism in sf, as is done for instance in Leigh Brackett's "All the Color's of the Rainbow" (1957) or Nancy Kress' "Out of All Them Bright Stars" (1985). These are stories which in good faith set out to test the waters of a society struck by strict ideological demarcations of difference. However, in employing the old sf trope of alien-as-other in exploring racism and marginality (Kress' story functions on this register, among others), these stories fail to engage the socially constructed nature of race as strictly demarcated difference rather than as biological typology. At best the texts fail to unmask the ideology behind racism, at worst they promote the very biological essentialist foundations of modern racism (this too is a perhaps incidental symptom of attempting to understand the social in terms of the natural sciences). This becomes especially relevant in a time when the specter of scientific racism keeps rearing its ugly head (see *The Bell Curve*; attempts to link intelligence to genetic heritability and race have yet to completely fade from academic discussion). This evidences the way techniques used to carry more overt racism in older sf have proliferated as generic tropes in the general sf aesthetic, and even when used for the purposes of critiquing racism, carry some of the racist

traces of older sf absorbed from that megatextual background. The exploited robot as an un-ironic exploration of worker exploitation functions in this very same way. In attempting to explore exploitation, it employs a metaphor that the practices and ideologies of modern capitalist exploitation are founded on.

If we examine Mari Wolf's "Robots of the World! Arise!" (1952),⁴⁵ the inconvenience of the robot as an sf motif for exploring labor becomes much clearer. Whereas I believe the ambivalence of the robot in "Fondly Fahrenheit" functions more unconsciously through the formal conceptual metaphor the text relies on, the ambivalence of the robot as a formal motif makes its way into the actual narrative of "Robots." "Robots" is a story that sets out to reimagine the sociopolitical terrain of mid-century America through the anamorphic action of sf. Clearly mindful of the labor movement, Fordism, the second Red Scare, and increasing technoscientific momentum in America, the story portrays the unfolding of a robot strike in a society entirely dependent on robot labor (it employs the common backdrop of a robot proletariat I've discussed). The robots organize and fight "for their inalienable rights as first class citizens" (Wolf 13). It is proposed by the robots, who were "made to obey orders" (10), that their treatment has been illegal. They announce that "Americans will never be slaves" (7), that "a nation can not exist half slave and half free" (8), and that "All men are created equal" (8). When it is opined by the protagonist that the robots are not men, Jerry (the robot ringleader) responds "We're rational beings. We have the power of speech and we can outreason you any day. There's nothing in the dictionary that says men have to be made of flesh" (7). Here the robots function on the un-ironic register initiated by *R.U.R.*. The tone of the story is sympathetic toward the robots and their

⁴⁵ The title is an allusion to Čapek's *R.U.R.*

exploitation, and obliquely, the exploitation of any marginalized consciousness. It also critiques unrestricted technoscientific momentum, with the sentiment that it was unkind to give the advanced robots "real brains" (16). This is where the story gets caught up: because of its obligation to offer a solution that is faithful to its technological novum, the narrative betrays its socially equitable sentiments. Just by the very act of estranging the contemporary moment as a means of re-rendering it and exploring it obliquely (while also genuinely exploring technological fantasies; the text clearly inherits the baggage of the stories that would constitute *I, Robot*), "Robots" ends up seemingly accidentally rendering the solution latest capitalism settled on. Because of its employment of the robot and a general technical rational posture, the final solution offered by the text is to compromise with the most intelligent of the robots, stratifying the robot class, and erecting a class of administrators within it. In offering a solution that hinges on the premise that the majority of the robots "just want someone to think for them" (17), the text wholeheartedly reinforces the logic of domination it had earlier called into question. Furthermore, its critique of overly ambitious science simultaneously registers on this level to reinforce the idea that it is dangerous and irrational to "instill in [workers] a desire for better things" or an enhanced capacity to think for themselves rather than blindly obey orders (Perlman ctd. in Higbie 108). As the story winds down, the protagonist states that "I just thought about what would happen if they won their rebellion. [. . .] Thought about robots built to work who had no work to do, no human pleasures to cater to, nothing but blank, meaningless lives" (17). The transposition here, between the social register of the text, and its anamorphosis (via the robot as novum), renders the working class as fighting a hopeless revolution which, if won would leave them without an intelligentsia or bureaucracy guided by the benefactors of the capital class,

ultimately floundering without a sense of purpose or meaning. The text registers this meaning as readily as that of a call for parity among humanity, and the reason this ambivalence exists is ultimately because of the robot.

"The robot which is you"⁴⁶

The notion that humanity is coterminous with technology, and that as such, an embracing of technoscientific progress will yield a post-scarcity, post-labor, techno-utopia, is an expression of the fantasy of global mass consumption prosperity that finds a space for its most thorough manifestation in post-human/post-singularity sf. While cyberpunk largely neglects the prospect of techno-*utopia*, post-singularity sf often provides a welcome vehicle for this fantasy through its relationship with transhumanism and its orientation toward technoscientific progress and the future. Furthermore, the post-singularity sf which doesn't foreground techno-utopia, often adopts its precepts as its background, by which to engage in other critical perspectives. Though Jürgen Habermas is also critical of the infiltration of technical rationality into the social sphere, in critiquing Marcuse's conception of technical rationality he expresses that:

Technological development lends itself to being interpreted as though the human species had taken the elementary components of the behavioral system of purposive-rational action, which is primarily rooted in the human organism, and projected them one after another onto the plane of technical instruments, thereby unburdening itself of the corresponding functions. At first the functions of the motor apparatus (hands and legs) were augmented and replaced, followed by

⁴⁶ From Cordwainer Smith's "Under Old Earth," a text somewhat critical of technoscientific progress but innovative in its early use of posthumanity, specifically human consciousnesses planted into robotic minds and bodies.

energy production (of the human body), the function of the sensory apparatus (eyes, ears, and skin), and finally by the functions of the governing center (the brain). Technological development thus follows a logic that corresponds to the structure of purposive-rational action regulated by its own results, which is in fact the structure of *work*. (87)

It is interesting to note that, were it not for this separation of work from other spheres of life,⁴⁷ this interpretation would have illustrated the logic of much posthuman sf: if technology were to eventually outpace human capacity for action, thought, feeling, affection,⁴⁸ etc., it should then replace it. Habermas' critique of Marcuse in this instance is problematic because it fails to emphasize how difficult it is to isolate work from other spheres of life:⁴⁹ if work is simply a means to an end based on purposive-rationality, then the configuration of work as a means to an end is allowed to be governed by this logic, such that the administrator becomes the brain, a worker the arms, another worker the legs, the workforce a broad technology that extends into the socioeconomic configuration such that, whatever end is aimed for, the means inherently produce an undesirable end, which is a stratified and alienated society. The belief that we are simply "extending our reach" with technology, rather than mediating, redirecting, and even constraining it, ultimately extends itself into all spheres of life. Labor thus becomes a sort of cyborg activity that bleeds into everyday life.

⁴⁷ Itself signaling a position within the ideology of technical rationality – the ostensibly equitable division of the day into "work" and "play" becomes one of capitalism's most effective strategies for increasing efficiency and productivity, as well as attenuating class antagonisms.

⁴⁸ Working under the equally problematic assumption that these are wholly quantifiable.

⁴⁹ To be fair to Habermas, it must be emphasized that he dedicates a good deal of his own work to examining this problem and critiquing the technification of the lifeworld.

We can relate this conceptualization to cyberpunk; however, it would be wrongheaded to treat cyberpunk as conceptualizing humanity and technology as coterminous. Instead, cyberpunk portrays a humanity coterminous with technology as a dark extrapolation of a society intent on treating humanity as such. There is a sort of dark irony in the fact that the sublime can only be found in cyberspace in the future because it has been entirely eradicated in actual space. William Gibson in particular is fond of introducing characters, specifically "console cowboys" (Gibson 22), who fetishize cyberspace to the extent that it becomes a transcendent space, an escape from the dystopian reality that has been erected around them by the logic of latest capitalism and technoscientific progress. The obverse of this sentiment is expressed in Pat Cadigan's "Pretty Boy Crossover," a story that affirms the value of a life unmediated by technology. Rejecting the offer to live as "sentient information" (593), the protagonist decides that "as long as they don't have him he makes a difference. As long as he has flesh to shake and flaunt and feel with" (596). His rejection of a systematized life as a technical property and its concomitant restriction of agency leaves him "lightheaded with joy – he doesn't know what's going to happen. Neither do they [meaning his would be 'benefactors']" (597). It is for this reason that I'm inclined to agree with Fredric Jameson's assessment of cyberpunk as a paranoid rendering of latest capitalism in the vein of Hunter S. Thompson and Thomas Pynchon. Jameson contends that, whereas Thompson relies on drugs and Pynchon relies on conspiracy to plot "the fear" of latest capitalism, cyberpunk achieves its full impact precisely because of the verisimilitude of its dystopian vision (Jameson 384-388).⁵⁰ Indeed, the cyborg tends to be pervaded by a sense of

⁵⁰ It is as though Pynchon's uncanny conspiracies are taken further into the uncanny valley by Gibson's relative verisimilitude in his later works.

dystopian unease in cyberpunk, every port and plug being a dirty and abject violation of the surface of the body.

Posthuman/post-singularity sf – such as the writing of Greg Egan, Charles Stross, Cory Doctorow, and Vernor Vinge – on the other hand, tends to take everything about cyberpunk that made technical invasions into social and bodily space abject, and make it generally fascinating and filled with possibilities.⁵¹ To be fair, this is not a necessary posture for post-singularity sf to take. I simply intend to express that the "empty conception of some future terminus" (Jameson 284) that the capitalist "experience of temporality" (284) depends on becomes literalized in the concept of a technological singularity that is expressed simultaneously as unknowable, and everything a capitalist techno-utopia could hope to be. Posthuman/post-singularity sf takes a variety of stances toward technoscientific progress, but it is unparalleled in its capacity to express the fantasies and pleasures of a post-scarcity techno-utopia. No other subgenre seems to provide as adequate a space for articulating an underlying fascination with the endless possibilities technoscientific progress might impel.

I find the overlap between posthuman/post-singularity sf and the transhumanist movement (as well as future studies, as Shaviro notes) particularly troubling. While Francis Fukuyama characterizes transhumanism as possibly "nothing more than science fiction taken too seriously" (1), he admits that its general tenets are not impossible. The transhumanist movement's general desire to "wrest biological destiny from evolution's blind process of random variation and adaptation and move to the next stage as a species" (1) has become a particularly

⁵¹ To be fair, cyberpunk has its moments that, prefiguring posthuman sf, indulge in the fantastic possibilities that might be offered by such a *mise-en-scène*; also, despite its absurd incarnation as potential critique of the hubris of an American exceptionalism and individualism, a certain sublime is expressed in the individualist frontier movement wrapping up "Red Star, Winter Orbit."

terrifying possibility. As Fukuyama notes, the logic that would replace biology here would be an extension of technical rationality to the very capacity of humanity, such that social status and wealth literally determine the nature of the body/agent and determine the boundaries of its power (2). This would have the serious potential to exponentially increase the rate at which socioeconomic disparity widens, as well as other problematic implications. Fukuyama convincingly argues:

Transhumanism's advocates think they understand what constitutes a good human being, and they are happy to leave behind the limited, mortal, natural beings they see around them in favor of something better. But do they really comprehend ultimate human goods? For all our obvious faults, we humans are miraculously complex products of a long evolutionary process – products whose whole is much more than the sum of our parts. Our good characteristics are intimately connected to our bad ones [. . .]. Modifying any one of our key characteristics inevitably entails modifying a complex, interlinked package of traits, and we will never be able to anticipate the ultimate outcome. (2)

Transhumanism itself overlaps with future studies, and the overlap between sf and future studies is as problematic as that between sf and transhumanism. In addressing the technological singularity and the work of Ray Kurzweil,⁵² Steven Shaviro notes that "Though Kurzweil specifies that the Singularity is 'neither utopian nor dystopian', the affinity of his vision with utopian thought is clear. After the Singularity, Kurzweil assures us, health, wealth, and immortality [. . .] will be available, at no cost, to everyone. Scarcity will be a thing of the past"

⁵² Kurzweil's faith in the inevitable and infinite continuation of Moore's Law is the quintessence of the ideology of infinitely expandable technoscientific frontiers.

(104). This describes the backdrop of a great deal of post-singularity sf – even if wealth is not necessarily always limitless, poverty is rarely foregrounded. In Cory Doctorow's post-singularity sf novel, *Down and Out in the Magic Kingdom* (2003), the protagonist's utter poverty after hitting bottom isn't actually presented as any sort of existential threat. In fact, he goes so far as to suggest that revisiting poverty "wouldn't be so bad" (Doctorow 52). Describing the nadir of his last bout of poverty in the post-scarcity society, he recalls that:

I slept in a little coffin on-campus, perfectly climate controlled. It was cramped and dull, but my access to the network was free and I had plenty of material to entertain myself. While I couldn't get a table in a restaurant, I was free to queue up at any of the makers around town and get myself whatever I wanted to eat and drink, whenever I wanted it. Compared to 99.99999 percent of all the people who'd ever lived, I had a life of unparalleled luxury. (52)

Of course, this isn't entirely surprising for a text foregrounding immortality to the extent that its protagonist dies multiple times while hardly missing a step. The post-singularity is presented as "the death of scarcity, the death of death" (Doctorow 34). Shaviro points out that the very idea of such a future inevitably alters our own orientation to the future, and consequently, our behavior in the present (105). As Shaviro clarifies, "the whole point of Kurzweil's speculation – its ideological function, if you will – is precisely to bring us to utopia without incurring the inconvenience of having to question our current social and economic arrangements" (106). This particular orientation toward the future, both that of transhumanism and future studies, often functions in the background of post-singularity sf – sf that may otherwise be effective at

critiquing our current mode of social existence – silently urging us to endure the inequities of the present and embrace technoscientific progress.

This ambivalence can be observed in Greg Egan's "Closer" (1992), a story examining ontology and identity. It utilizes the frame of the post-singularity to examine the limits of subjectivity, intersubjectivity, sexuality, and identity, in a way that ultimately undermines the heteronormative masculinist principles of Western modernity. However, in order to do this, its anamorphic estrangement relies on the backdrop of the posthuman singularity and an optimistic orientation toward its endless possibilities as a techno-utopia (though to be clear, the narrative is not overtly utopian in its themes). "Closer" expresses a faith in technoscientific progress to the extent that it not only proposes immortality, but the notion that after the end of the universe, "physicists will find a way for *us* to go on without *the universe*" (Egan 685). As Fukuyama predicts, the text clarifies that the previous logic of human equality, grounded in the equalizing power of death, becomes dubious after the singularity (Egan 685). In regards to a technical rational understanding of consciousness and experience, the story glosses over the problematic aspects of switching the brain with a "neural-net computer" (685), and proposes that there is little difference between literature written by humans and that produced by "unthinking software" (685). There is a similar ambivalence in *Down and Out* – while its anamorphosis provides a critical angle on our own present, questioning the totalizing homogenizing nature of modern global capitalism, even questioning the phenomenological and ontological implications of posthumanity, the backdrop it depends on articulates a fantasy about the future that orients the present toward the possibilities engendered by technoscientific progress.

In outlining the logic of technoscientific progress and the spread of technical rationality as a facet of the ideology of modernity as progress, I've attempted to chart its ambivalent intersections with a range of science fiction. I've analyzed the presence of the fantasy of a robot proletariat in Isaac Asimov's *I, Robot*, and identified ambivalence of the robot at the level of form in Jack Williamson's "With Folded Hands." I've clarified that to transpose a worker as a robot is to undergird a positivist logic that understand a worker as fundamentally a technology governed by technical rationality and contiguous with technology proper. In addition I've addressed the way that, in such a schema, humans behave as devices within a structuration of technification, which is to say that humans become complicit in technification and are encouraged to function akin to technologies that reproduce their own relations of production in a stagnation of class disparities. I've attempted to outline the ambivalent presence of the robot as an exploration of worker exploitation and a perpetuation of worker-as-machine in Karel Čapek's *R.U.R.*, Alfred Bester's "Fondly Fahrenheit," and Mari Wolf's "Robot's of the World! Arise!" Finally, in briefly touching upon Cory Doctorow's *Down and Out in the Magic Kingdom*, Greg Egan's "Closer," and the technofuturism of Ray Kurzweil, I've illustrated that the post-singularity landscape becomes a space capable of providing profound anamorphic perspectives, while also being unprecedented in its ability to extrapolate and articulate capitalist utopia and the fantasy of global mass consumption prosperity. In regards to the latter, the post-singularity functions as a delusion that asks us to ignore the incongruities and inequities of the present (including those between humanity and its biophysical life support system, "nature"), as well as the problematic aspects of technification and technoscientific progress, and instead double down on our current

economic and sociopolitical trajectory in the hopes of finding in the future that eutopia that we are unwilling to genuinely strive for in the present.

Conclusion

The collusion between the authority of "science" and "rationality" in the social sphere and the practices and ideologies of colonialism and neo-imperialism have been made apparent in the preceding sections. In utilizing the authority of science as a means of cognitively estranging social realities, science fiction is particularly vulnerable to the ideological nature of putatively neutral technoscience. That being said, as a result of its ambivalent capacity to undermine its own authority at the level of form, as well as its capacity to engage and critique at the level of narrative the ideologies that its form impels, I am overwhelmingly optimistic about the potential sf has for re-examining even the boundaries of our own scientific episteme and calling into question the unfettered spread of technoscience to all spheres of life in modernity. There is still much to be explored in regards to the ambivalence of sf's formal action, as well as the ambivalence of this formal action in relation to the narratives pursued within the genre. I would be particularly interested to further examine sf texts utilizing quantum mechanics, string theory/m theory,⁵³ and other sciences at the shifting boundaries of the episteme, as a technique of cognitively organizing estrangement. Such sf likely has further implications for what Miéville regards as the ideological nature of science fiction's cognitive function, given that such science seems to function under a different kind of authority than much of the modern scientific episteme. These areas of science seem to function under a more speculative and tentative authority, which often sets out to undermine, adapt, or re-imagine the previous authority of the scientific episteme. At the horizon of shifting paradigms there is great room for new epistemic modes to arise, starting at the level of the individual "tactician" so to speak (for instance, I

⁵³ For instance, see Geoff Ryman's "Everywhere."

believe that, in an age so pervasively dominated by the authority of science, much of what is referred to as "postmodern" thought might be traced to the growing indeterminacy of science in the rifts between relativity and quantum mechanics in the early to mid-20th century). Exactly how useful science fiction might be for exploring the boundaries of our own epistemic moment is difficult to say, though it certainly seems conveniently located to do so. That being said, we should be wary of those who would quickly and wholeheartedly endorse sf as an inherent or even tendential escape from the ideology of its historical moment, or as a sure-fire means of expanding the boundaries of our episteme.

This hesitance brings me to a desire to provide a sort of meta-commentary for sf. As of late there has been an intense enthusiasm within postcolonial studies for identifying "postcolonial science fiction" and examining the conduciveness of the genre for postcolonial analysis. In addition to an increased emphasis on the publishing of "postcolonial" science fiction (as in for instance, *So Long Been Dreaming: Postcolonial Science Fiction & Fantasy* [2004]), there has been a concerted increase in the analysis of sf as postcolonial (as in *Science Fiction, Imperialism and the Third World: Essays on Postcolonial Literature and Film* [2010]; *The Postnational Fantasy: Essays on Postcolonialism, Cosmopolitics and Science Fiction* [2011]; *Postcolonialism and Science Fiction* [2012]; as well as in special issues of the journals *Science Fiction Studies* and *ARIEL*). Not to detract from the legitimacy of any of these analyses (many of them are quite interesting), I simply intend to argue against a trend within scholarship that might give the impression that science fiction is an arena characteristically conducive to "postcolonialism," a trend that might lead to problematic appraisals of particular science fictional

works as "postcolonial," when they are in fact no such thing, or to naive characterizations of the postcoloniality of the genre.

To provide an example, *Science Fiction, Imperialism and the Third World* includes an essay by Herbert Klein naively assessing the meritorious "postcoloniality" (153) of *The Moon is a Harsh Mistress*. Klein writes that "the relationship between humans and machines can also be regarded as that between Self and Other, that the two are intricately linked and mirror each other, and that the SF elements thus introduce a new angle into the concept of alterity" (142). In regards to postcolonialism, what exactly might be the usefulness of such a "new angle" of alterity in which humanity becomes symmetric and coterminous with technology – in Klein's words, "symbiotic partners" (148)? In analyzing this "Mechanical Other" (147), Klein ends up asserting the irreplaceable importance of technology and technification as an unmediated extension of human reach – "without them, everything would break down" (148) – and observes that sf is particularly useful *because* of its unique ability to anthropomorphize machines, specifically as an ambiguous exploration of "alterity." He fails to find it problematic that the "leader of the revolution" is a machine, and instead reinforces Heinlein's implication that the planning of Mike and the Professor – as the "great men" of history – is the only reason the Lunar revolution succeeded, the only way it could have (148). In an enthusiasm to engage the postcoloniality of *Moon*, Klein misreads this ideological novum as some sort of useful exploration of "alterity" rather than a reinforcement of the ideology of technoscientific progress. Klein is very quick to cite a myriad of certified "postcolonial" theorists in his examination – he even goes so far as to

analyze Mike as "subaltern" (150)⁵⁴ – which gives his analysis a sort of dissimulative authority. However, in reality he unveils nothing particularly "postcolonial" about *Moon* in its historical context, and actually reinforces the merits of those aspects of the text most in keeping with the ideology of modernity as progress.

Jessica Langer's *Postcolonialism and Science Fiction* also seems particularly informed by a concerted effort to identify postcolonialism in sf (hence the title). Much like Klein, Langer finds support from the usual suspects – she is particularly fond of identifying what she terms "Bhabhaian" references or undertones (usually so thickly disguised or obliquely signified in the analyzed text as to be indistinguishable, nonexistent even) which certainly speaks to this sentiment. The oft repeated proposition that one feature or another of whichever sf text she is discussing "may be a nod to [a] Bhabhaian concept" (Langer 52; emphasis mine) seems to reflect a permeating desire to find the "postcolonial" in sf, and more generally, the feeble and uncommitted fetishization of postcolonial studies in Western academia. This tendency is further emphasized by the author's flagrant misinterpretations of "Bhabhaian" concepts: the text fails to cite most of the references to Homi K. Bhabha and seems to be laboring under the misconception that any kind of ambivalence in a text signifies Bhabha's conception of the ambivalent function of colonial discourse (the same goes for the concepts of "slippage," "hybridity" and "mimicry").⁵⁵ Langer pursues the thesis that, rather than there being something about the form of sf which makes the genre particularly conducive to imperialist ideologies, the genre has simply been "adopted for imperialist and racist ends" (45). This of course side-steps the fact that the

⁵⁴ At this point the analysis almost becomes a parody of itself – Klein states that Heinlein's concern in this novel is to "make the subaltern speak" (153). He then begins to compare the postcoloniality of *Moon* to the work of Wole Soyinka and Ayi Kwei Armah (153), an utterly dumbfounding connection.

⁵⁵ Just to make sure it is clear, my own examination of the ambivalence of science fiction has *nothing* to do with Homi K. Bhabha.

genre emerged in the company of permeating colonial ideologies, as John Rieder elaborates, and that the form of the genre as a cognitively estranging literature is mediated by the authority of Western technoscience and scientific rationality. In order to pursue her thesis, Langer examines a variety of texts including an anthology of sf and fantasy published under the pretense of being "postcolonial science fiction" (most of it apparently written for the purpose of inclusion in this anthology) – this sort of seems like Langer is begging the question. She also examines at length the *fantasy* MMORPG *World of Warcraft* – which she excuses by identifying "science fictional elements" (85), such as technology and a colonialist inflection, in the game's *mise-en-scène* – and China Miéville's *Perdido Street Station*, a text which employs magic and is decidedly not "science fiction."⁵⁶ I would argue that it seems more likely that the genre is now being adopted for "postcolonial" ends, which would be wonderful were it not for the potentially dissimulative nature of this phenomenon. Surely the genre has the potential to undermine the practices and ideologies of colonialism, but it is also tethered by a generic trend that tends to reinforce the merits of technoscience in the social sphere and, more generally, the ideology of modernity as progress.

I have made what I hope is an opening foray in examining what I've identified as an ambivalent streak in science fiction, particularly in regards to ideological technoscience and the ideology of modernity as progress. I have identified that the authority which sf's cognition relies on is the very authority of science that impels its spread into all areas of the social sphere within modernity. At the level of form, I've identified a potential ambivalence at the heart of sf's cognitive estrangement, specifically in its ability to undermine its own authority. I've also

⁵⁶ This is not to its discredit. This is simply to show that Langer seems to be more concerned with identifying postcolonialism than with mapping the tendencies of the genre proper.

explored an ambivalence between the genre's tendency toward articulating ideological technoscience and the ideology of modernity as progress, as well as the capacity of its narrative to critique this ideology with the aid of anamorphic estrangement. In outlining the potentially problematic aspects of the utilization of science as a conceptual map for society in science fiction, as well as the potential ambivalence of the genre's megatextual motifs, I hope to have laid the foundations for a reconsidered, thoroughly rigorous examination of science fiction's true potential to expand the boundaries of our epistemic mode, and concomitantly, our current mode of social existence.

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