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The (Manufactured) Human in U.S. Science Fiction, 1938-1950

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This dissertation almost did not get written.

The first science fiction book I remember reading was one given to me by my father. He handed me a copy of Robert Heinlein's *Farmer in the Sky* and said "I think you'll like this. It's about pioneers, but they're on *a moon of Jupiter*!" I was hooked. When I began studying science fiction in graduate school, I raided my father's science fiction collection for books. I "borrowed" more books when I decided to write my dissertation on Golden Age science fiction. My father even critiqued a draft of my dissertation proposal before giving me a stack of books to read before I wrote the next draft.

And then, one day, my father was gone, taken by a cancer we'd thought he'd beaten. After the funeral, I returned home to face a pile of books critical for my dissertation that had once been my father's. I wasn't sure I could continue working on a project that reminded me of what I'd lost at every turn.

That this dissertation *did* get written is a testament to all the people who helped me keep going even when I wasn't sure I wanted to. I may have written the words, but they did the hard work.

Bethanie and Laura Connors, my mother and sister, read draft after draft and gave me feedback. My husband, Jason Kavetsky, supported me financially and emotionally throughout graduate school. He also cheerfully accepted living with the hundreds of books that came with being married to an English graduate student. My best friend since middle school, Caren Losiewicz, read drafts and discussed ideas with me. My extended

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DEDICATION

To My Father,

Harry E. Connors, III

ABSTRACT OF THE DISSERTATION

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The 1940s were a crucial period in the development of how the human-machine continuum was formulated and understood. Over the course of the decade, Americans experienced numerous social and scientific changes, many of which had long lasting effects. As science and technology became increasingly complex during this period, gender norms also experienced significant changes. Changing gender norms both affected how people understood the Self and how they understood the Self's relationship with advanced machines. I explore the relationship between humans and their technological tools by examining science fiction texts published during this period. I read both science fiction texts and contemporary reactions to those texts produced by science fiction fans in a variety of professional and amateur publications. I focus on the U.S. science fiction community, especially the portion linked to *Astounding Science-Fiction*, which largely embraced closer relationships with technology during this period. However, the same

community resisted attempts to redefine the human side of the equation in relation to gender.

This dissertation extends the history of science fiction's engagement with the relationship between gendered humans and machines. It argues that while the community often expressed a clear interest in integrating humans more fully with machines and machine systems, it resisted attempts to re-define the human Self as other than white, male and heterosexual. The texts considered here laid the groundwork for later movements but many have been lost with the death of the pulps. It also investigates how fans helped to shape the development of some of the genre's core themes. The ephemeral nature of fan-created texts means that scholarly knowledge of their contents and influence is partial and incomplete. By restoring fans' voices to the genre's conversation about the relationship between gendered humans and machines, I am able to give a more complete picture of issues that continue to shape science fiction and American culture today.

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INTRODUCTION

In the summer of 2014, several news outlets breathlessly reported that a computer program had passed the Turing Test by successfully convincing human judges that it was a thirteen year old Ukraine boy. Experts in artificial intelligence later disputed the validity of the claim, but the news still caught the public's imagination ("Computer AI"). Could machines think like humans? Could machines, someday, *be* human? Implicit in these questions is the perceived (lack of) differences between humans and machines. How we understand the human Self is dependent, in large part, on how we define what is not human. At their most basic, such questions must grapple with the ever-evolving relationship between humans and machines.

Much scholarly work has been done on post-cybernetic relationships between humans and their technological tools, but these relationships predate the rise of networked, digital computing. The Turing Test itself was first outlined in 1950, and Turing's own work with computational machines had begun more than a decade earlier. This earlier period, from just prior to World War II until 1950, has been relatively neglected by scholars interested in understanding the connections between humans and advanced machines. This dissertation seeks to fill in this missing history and argues that the 1940s was a crucial period in how the human-machine continuum was understood. Over the course of the decade, both portions of the human-machine relationship were revised by social and scientific developments. As science and technology became increasingly complex during this period, gender norms also experienced significant changes. This dissertation focuses on the U.S. science fiction community, especially the

portion linked to *Astounding Science-Fiction*, which largely embraced closer relationships with science and technology. However, this community also resisted attempts to redefine the human side of the relationship, especially in relation to gender.

Over the course of the 1940s, Americans experienced numerous social and scientific changes, many of which had long lasting effects for both the U.S. and the rest of the world. The demands of the Second World War spurred scientific and technological innovation, leading to developments in diverse fields including radar, computing, and nuclear science. The postwar years would not only see the development of digital computing but also the increasing mechanization of the home through the widespread adoption of home appliances. Many of these changes significantly altered how people understood and related to science and technology over the course of the decade.

Along with rapid scientific developments, this period also witnessed alterations to traditional gender norms. The need for wartime workers during World War II meant that millions of American women sought out paid employment in industries formerly closed to them. Many of these jobs, however, returned to men once the war was over and women were (re)contained in the domestic sphere. Yet women's success in what had formerly been male domains, such as heavy industry, challenged patriarchal gender norms even as awareness of this fact was repressed during the postwar emphasis on the heteronormative family.

Changing gender norms affected both how people understood the Self and how they understood the Self's relationship with machines. I explore the relationship between humans and their technological tools by examining American science fiction published

during and after the Second World War. I read both science fiction texts and contemporary reactions to those texts produced by science fiction fans in a variety of professional and amateur publications. This enables me to examine how both producers and consumers of popular scientific discourses viewed the ever-changing relationship between (gendered) humans and machines over the course of the 1940s.

A key metaphor in my examination of the human-machine relationship is the manufactured human. I use the term "manufactured human" to refer to humanoid creatures which have been deliberately modified and/or created by technological processes, either in whole or in part. It is an umbrella term that includes robots, cyborgs, androids, bioengineered beings, and artificial intelligences within its scope. I have deliberately made this definition broad because a character's (lack of) "natural" characteristics can significantly alter its reception. I argue that the manufactured human symbolically embodies our relationship with our technological products as well as our attempts to understand that relationship.

The Golden Age of Science Fiction

American science fiction is especially well suited to explore how this relationship was understood during the 1940s. In the process of imagining the future effects of scientific inquiry and innovation, science fiction often makes visible contemporary attitudes towards science and technology. What does or does not change in these extrapolations can reveal more about the cultural context that produces the text than does "realistic" fiction where cultural givens can fade into the background. Many of the science fiction texts considered in this dissertation imagine changes in our relationships

with our technological products, and by doing so, reveal how the people that created them viewed the scientific and technological developments transforming the world around them.

The fiction I discuss in this dissertation was originally published in *Astounding Science-Fiction*, which had an outsized influence on the genre during the 1940s. Although stories and authors published in other magazines were important to the development of science fiction, broad trends in the genre often reflected issues of interest to *Astounding Science-Fiction*, its readers and its editor, John W. Campbell, Jr. Even those who disliked the magazine or Campbell often found themselves in conversation with it, even if that conversation was a negative one. By focusing on *Astounding Science-Fiction*, I am able to trace the dominant discourses that shaped the genre over the course of the decade. The texts published in *Astounding Science-Fiction* during the 1940s reveal an on-going interest in human-machine integration among its editors, writers, and readers. In the early years of the decade, the magazine's portrayals of manufactured humans suggest a steadfast optimism about the potential of advanced science and technology to positively transform human society. Although later portrayals of such characters reveal an increasing awareness of the negative effects of uncontrolled science and technology, they still view such developments in a positive light—as long as they are paired with "logical" (male) human beings. This emphasis on "logic" can be found throughout the science fiction of the 1940s. For example, it is frequently biological humans rather than manufactured humans who are the source of conflict in the narratives published in *Astounding Science-Fiction* during this period. Rather than seeing science as

shaped by socio-political upheavals, these texts reveal that the science fiction community repeatedly framed science as a logical response to such issues.

The science fiction community is an especially close-knit one, and thus it is important to consider how fans influenced the genre. As Justine Larbalestier notes in *The Battle of the Sexes in Science Fiction*, many science fiction authors got their start as fans. Isaac Asimov, for example, was a well-known fan in the science fiction community whose letters often appeared in both professional and amateur publications before he began his career as a professional writer. Not only would Asimov eventually earn a Ph.D. in biochemistry, his Three Laws of Robotics, first published in *Astounding Science-Fiction*, had a lasting influence on robotics research. His career thus highlights the close relationships among science, science fiction, and science fiction fans. Even authors who did not follow this route to commercial publication frequently interacted with fans in person at fan conventions, through private correspondence, in the letter columns of professionally published magazines, and via commentary in fan-produced magazines (commonly referred to as "fanzines" or "zines"). Fans' reactions to various topics and themes, such as the relationship between (gendered) humans and technology, often influenced how such ideas were developed in subsequent texts by professional authors. By examining fans' discussions of a wide range of reconfigurations of the human-machine continuum, I am able to more fully illuminate how the relationship between humans and machines was understood as it evolved during the 1940s.

An important source of contemporary fan commentary is the letters published in *Astounding Science-Fiction*'s letter section, Brass Tacks. Because the magazine did not

have space to publish every letter it received, the letters that appeared in its pages had to be selected by a member of the editorial staff. It is thus possible that these letters reflect Campbell's interests and biases. To give a fuller picture of the community during this period, I also examine the original creations of fans, specifically fan-created magazines. There is no index of fan publications produced during this period and in many cases such materials are not even fully cataloged. Thus, my search through the extensive fanzine collection of the University of California, Riverside was necessarily partial and incomplete. To address this issue, I located contemporary fan rankings of each year's "best" zines. These rankings did not always accurately gauge quality, but they do provide a rough guide to popularity. In order to receive a top ranking, a particular zine needed an established readership made up of a fairly large portion of the science fiction fans engaged in such activities. Thus, they generally reflect the prevailing interests and opinions of the community. By focusing on both letters in *Astounding Science-Fiction* and popular zines, I was able to get a sense of the topics most of interest to the science fiction community during the period of my study.

Women have been present and active in the science fiction community since its early days, but they were frequently outnumbered by their male counterparts. Contributions by women during the 1940s, either as authors or as fans, were also often minimized by the masculine science fiction community. Science fiction, however, is a literature explicitly engaged in imagining potential futures and new social contexts. Those futures may never come to pass, but as Joanna Russ argues in *To Write Like A Woman: Essays in Feminism and Science Fiction*, one of science fiction's strengths is its

ability to make invisible social norms visible (xv). Many of the texts examined in this dissertation imagine a range of future social configurations. While some attempt to challenge prevailing gender norms, others implicitly and/or explicitly naturalize contemporary attitudes about gender. The varying portrayals of gender and technology, as well as their reception by readers, reveal shifts in the range of imaginable gendered subjectivities and their relationships with technology during this period.

Science and Technology in the 1940s

Perhaps no scientific development had more influence on the 1940s than nuclear science. Many historians focus their attention on Americans' relationship with nuclear science after late-1949, when the world learned that the U.S.S.R. had nuclear weapons of its own. Paul Boyer argues in *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* that "All the major elements of our…[later] engagement with the nuclear reality took shape literally within days of Hiroshima" (xix). Thus, the years between 1945 and 1950 are crucial for understanding the issues that shaped the following decades. As I will discuss in Chapter 1, the science fiction community's reaction to the news of the atomic bombings of Japan was one of excitement. They felt that the genre had predicted the development of nuclear science, and they saw these events as proof of science fiction's socio-political importance. In the years following the war, John W. Campbell, Jr., head editor of *Astounding Science-Fiction*, took an optimistic view of nuclear science and this outlook informed portrayals of nuclear science in the magazine. The science fiction community's approach to the bomb in the postwar years was also deeply shaped by earlier portrayals of science and technology in the pages

of *Astounding Science-Fiction* during World War II. To fully understand later engagements with nuclear science, it is necessary to extend my scope further than Boyer and other Cold War scholars to include the first half of the decade.

Another important development of the 1940s was that of electronic computational machines. Although these devices predate the Second World War, it was during the war that many people first encountered them in the form of targeting systems for heavy munitions. The war also saw Alan Turing's use of computational devices to break the German Enigma code. Although Turing's work would remain classified for many years, the devices he developed during the war significantly influenced later computing research. In "Imaginable Computers: Affects and Intelligence in Alan Turing," Elizabeth Wilson investigates Turing's long-standing interest in machine intelligence. She points to Turing's view of the machine mind as that of an infant or young child, which she argues led to Turing's definition of machine intelligence as evidenced by the ability to learn. The development of electrical computing was of significant interest to the science fiction community during this period. 1940s science fiction often featured thinking machines who were fully realized adult selves. As I shall discuss in Chapter 2, the science fiction community was also fascinated with methods that claimed to enable a more machine-like functioning of the human brain. These two perspectives bracket Turing's view of the machine-as-child. Human brains could be trained, much like a child's, and the minds of manufactured humans were always already mature. An examination of how these themes were explored during this period will help illustrate how research on computing and machine intelligence was understood as it was articulated and developed.

The development of computing in the 1940s was linked with the development of the theory of cybernetics. In *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, N. Katherine Hayles examines the records of the Macy Conferences on Cybernetics, which were held from 1943 to 1954. She argues that it was during these conferences that an interdisciplinary team developed "…a new way of looking at human beings. Henceforth, humans were to be seen primarily as information-processing entities who are *essentially* similar to intelligent machines" (emphasis in original, Hayles 7). Hayles traces the development of this cybernetic vision and its implications through the following decades and concludes with an examination of recent engagements with virtual reality. She argues that the early formulations of cybernetics laid the groundwork for the modern "…belief that information can circulate unchanged among different material substrates" (Hayles 1). Hayles identifies the postwar years as a crucial period in the conflation of the human and the cybernetic machine. Scholarly interest in cyborgs has primarily focused on science fiction published after 1960 when the term "cyborg" was officially coined.[1] But as Hayles notes, the perception that humans and machines are intimately connected predates 1960. I am able to further explore this earlier period by examining how the development of computing was portrayed in popular literature in conversation with the types of scientific discourses Hayles examines.

Gender Norms in the 1940s

With the onset of World War II, millions of American men began serving in the military. With the men fighting overseas, American women were called upon to work in

[1] "Cyborg" was first used by Manfred E. Clynes and Nathan S. Kline in their scientific article "Cyborgs and Space."

what had formerly been almost exclusively male industries. Perhaps best known for the iconic image of Rosie the Riveter, the female war-time worker movement seemingly challenged gender norms that discouraged women from seeking paid employment. In *Creating Rosie the Riveter: Class, Gender, and Propaganda During World War II*, Maureen Honey argues that government propaganda campaigns drew on normative ideals that saw women as self-sacrificing figures who only took on the burden of paid employment because their country needed them. These conceptions of women failed both to accurately reflect women's employment and to radically challenge gender norms. As my third chapter will show, the science fiction community largely resisted acknowledging the role of women in science, thus highlighting the larger social forces that attempted to downplay the subversive effects of women's war-time employment.

Scholars such as Annegret S. Ogden and Shelia A. Rothman have identified the first half of the twentieth century as a time when women were transformed from domestic scientists to domestic consumers.[2] During the 1930s and early 1940s, household efficiency experts like Christine Fredrick elevated the housewife to a domestic scientist who deployed her resources strategically so as to maintain a healthy and comfortable home. As would be the case in the postwar transformation of housewives into savvy consumers, this reframing of women's domestic duties enforced normative values by tying women to the domestic sphere. Being a housewife was framed as a career, which discouraged women from seeking employment outside the home. This dissertation examines how these transformations were represented in popular literature and how

[2] I refer here to Ogden's *The Great American Housewife: From Helpmate to Wage Earner, 1776-1986* and Rothman's *Woman's Proper Place: A History of Changing Ideals and Practices, 1870 to the Present*.

readers, both male and female, reacted to those portrayals. By doing so, it gives a more detailed picture of an important period of transition in socio-political conceptions of gender norms.

Other texts, including Ruth Schwartz Cowan's *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* and Susan Strasser's *Never Done: A History of American Housework,* focus more specifically on the domestic technologies used during this period. Strasser notes that while many household technologies significantly mitigated the back-breaking labor of many domestic tasks, they also isolated women in their homes. Laundry may no longer have been a physically grueling task that required an entire day for completion, but women no longer chatted at the village well or over tubs of soapy clothes. Cowan argues that the increased mechanization of the home did not free women from domestic drudgery but paradoxically increased domestic responsibilities, thus further tying women to the home. Tasks, such as washing clothes, which were done on a weekly basis at the beginning of the century, were expected to be done more frequently by mid-century due to the "convenience" of labor-saving devices. The arguments made by Cowan and Strasser point to the complex ways in which scientific and technological developments affected the domestic sphere and conceptions of women's roles in society. This dissertation examines this complexity in more detail by focusing on the decade during which Americans increasingly adopted the suburban lifestyle with its numerous household appliances.

Gender, Science, and Technology

Shifting gender roles and rapid scientific developments are linked by more than just historical chronology. The two are inextricably bound up with each other, a fact made clear by the Turing Test itself. In the article that gave rise to the Turing Test, "Computing Machinery and Intelligence," Alan Turing examines various arguments that machines will never develop "intelligence." He argues that if a human cannot distinguish a machine's responses to questions from those of a human then the distinction between the two becomes moot. As N. Katherine Hayles notes in *How We Became Posthuman*, the example of a human exchanging messages with a machine is actually the second of Turing's two examples. The first example asks that a judge determine if an unseen subject is a man or a woman based only on typed answers to questions. Hayles rhetorically wonders "If your failure to distinguish correctly between human and machine proves that machines can think, what does it prove if you fail to distinguish woman from man? Why does gender appear in this primal scene of humans meeting their evolutionary successors, intelligent machines?" (xii).

Although not explicitly noted by Hayles, the machine takes the place of the female participant in Turing's second, more famous, example. Not only does the male participant become a seemingly unproblematic representative of "human," the female participant is effectively erased from the proceedings. This highlights contemporary gender norms that saw science as a masculine pursuit, but it also demonstrates that women remain fundamentally linked to technological developments. Their contributions may be neglected, but they remain a gendered ghost in the machine. Women and

machines are further linked by the nature of the human-machine relationship itself. Thinking machines challenge the stability of one half of the relationship by suggesting that machines can be Selves, not objects. Increased awareness of the social construction of "human" as a gendered subject further challenges patriarchal attempts to equate the term with white, heterosexual males. Thus, it is important to consider how the development of thinking machines was understood in relation to changes in the understanding of the Self as a gendered subject.

With the rise of cyberfeminism, the relationships between advanced technologies and gendered bodies have been investigated by numerous scholars. Perhaps one of the most well-known of these is Donna Haraway, whose "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century" argues that as a hybrid figure, the cyborg problematizes the idea of a unified identity. Haraway cautions, however, that "The main trouble with cyborgs, of course, is that they are the illegitimate offspring of militarism and patriarchal capitalism" ("Cyborg" 151). She further argues that while this does not necessarily rob the figure of the cyborg of its subversive potential, this background must be kept in mind when considering hybrids that mix the biological and the technological. Especially in the context of World War II and the Cold War, it is important to consider the relationship between scientific inquiry and the military-industrial complex because it laid the groundwork for many of the techno-social developments that followed.

The ability of technology to both enforce conformity with cultural norms and to enable hybrid subjectivities to flourish is also explored by Allucquère "Sandy" Stone in

The War of Desire and Technology at the Close of the Mechanical Age. Stone investigates how bodies are represented through and by technology and argues that "…the coupling between our bodies and our selves is a powerfully contested site" (84). Stone focuses on networked technologies and argues that the methods of communication they enable reveal that all identities are discursively produced persona that exist as multiplicities. Stone sees the multiple self enabled by technology as potentially the opposite of the unified self produced by social/state apparatuses, and she is hopeful that virtual spaces will perhaps allow for a rewiring of the idea "of the bounded individual as the standard social unit…" (43). Many of the communication apparatuses discussed by Stone had yet to be invented in the 1940s, but the manufactured humans portrayed in science fiction during this period anticipate many of the issues Stone later examines.

In *Technologies of the Gendered Body: Reading Cyborg Women*, Anne Balsamo states that the figure of the manufactured human in popular culture often marks a site of ideological struggle over what "counts" as a body.[3] Balsamo argues that "…the 'natural' body has been dramatically refashioned through the application of new technologies of corporeality" (5). More specifically, the technological body is increasingly seen as a series of parts, rather than as a material whole, and Balsamo is particularly interested in what this fragmentation does to gender. She argues that gender remains a "natural" marker of difference even in the technological body. Those most interested in (re)creating the discourse of technological disembodiment as desirable are those whose bodies are already perceived as unmarked by discourse. The science fiction community's techno-

[3] Balsamo defines the "body" as both a product and as a process. That is, it is both a material embodiment of cultural identities (a product) and a place where personal identities can be staged (a process).

optimism during the 1940s can be read as an early example of the tendency that Balsamo identifies in later conversations about virtual technologies. Examining this earlier period enables a better understanding of more recent techno-social issues and conversations.

Science Fiction Studies

This dissertation is informed by the work of several other science fiction studies scholars. In his examination of gender in twentieth century science fiction, Brian Attebery argues that science fiction, despite its future-oriented premise, has tended to be socially conservative, especially in imagining alternate configurations of gender norms. Attebery attributes this partly to the genre's largely masculine fan base and partly to the constraints of needing to appeal to a mass market readership, which also favors masculine values and interests. Attebery argues in *Decoding Gender in Science Fiction* that the genre's own mechanics continually work to push it outside of its comfort zone. In the case of gender norms, "The genre's storytelling conventions encourage writers to ask questions about the biological basis of sexual division and allow them to explore alternative formulations of society and the individual psyche" (Attebery 4). Attebery's scope in *Decoding Gender in Science Fiction* is that of the entire twentieth century, and like texts with similar historical perspectives, his broad view of the genre means that he is unable to consider any one period's development in depth. Like many of the scholars discussed here, Attebery's analysis also does not include fan discourses. By recovering and analyzing these conversations, this project is able to add additional context to historical discussions like Attebery's.

In *Galactic Suburbia: Recovering Women's Science Fiction,* Lisa Yaszek argues for the importance of postwar science fiction, especially by female authors. Texts by women which were published during this period have been frequently overshadowed by the more well known feminist science fiction of the 1970s. In her examination of postwar science fiction by women set in what she calls "galactic suburbia," Yaszek argues that the works of female authors "…served as a potent critical voice about the relations of science, society, and gender as they were articulated first in the wake of World War II and as they continue to inform American culture today" (5). The period Yaszek examines in *Galactic Suburbia* overlaps with the one considered in this dissertation. By including the early 1940s, I am able to examine how the relations Yaszek discusses emerged during the war itself.

Inspired by Joanna Russ's 1980 essay "*Amor Vincit Foeminam*: The Battle of the Sexes in Science Fiction," Larbalestier examines battle-of-the-sexes science fiction stories from the mid-1920s through the early 1970s in *The Battle of the Sexes in Science Fiction*. Larbalestier is specifically interested in "…how such stories provide insight into the role of women in science fiction" (1). She argues that battle-of-the-sexes stories are part of larger discourses on gender and gendered behavior and notes that "Looking at the way the battle-of-the-sexes texts theorize sexual difference is part of the work of historicizing sex and examining questions of difference" (Larbalestier 13). Her analysis also includes fan discourses, both in the letter columns of professional magazines and in fanzines as early as the 1930s. My work here builds on Larbalestier's by examining how

the genre's understanding of the Self as gendered was linked to its understanding of the Self as cyborg during the 1940s.

Scope of Project

This dissertation focuses on the science fiction community between 1938 and 1950. Although my primary interest is the 1940s, I consider slightly earlier texts for several reasons. John W. Campbell, Jr. became head editor of *Astounding Science-Fiction* in late 1937. Campbell's tenure as editor of *Astounding Science-Fiction* frames what is often called the Golden Age of science fiction. As Mike Ashley notes in *The Time Machines: The Story of the Science-Fiction Pulp Magazines from the Beginning to 1950*, one of Campbell's goals as editor of *Astounding Science-Fiction* was to publish stories that would "…[appeal] directly to a mature and sophisticated readership" (108). "Gadget plots" became less common as Campbell encouraged authors to consider how science and technology were embedded in larger cultural systems. The science fiction fan community also became increasingly organized in the years prior to the Second World War. The first World Science Fiction Convention was held in July 1939, and except for a break at the height of the war, the World Science Fiction Convention has continued to be held annually. By beginning slightly before the formal start of the decade, I am able to get a more complete picture of the science fiction community during this crucial period in its development.

My study extends to 1950, in part, to consider the initial impacts of several developments in computing on the science fiction community, including include transistors (1947) and the theory of cybernetics (1948). These developments, along with a

range of others, were covered by non-fiction science articles in *Astounding Science-Fiction* and discussed by Campbell in editorials. Towards the end of the decade, the science fiction market also began to transition away from magazines and into the book market. Many of the early novels were republished works that had originally appeared in magazines or were "fix-ups" (a series of short stories reformed into a novel length narrative). Although *Astounding Science-Fiction* would continue to influence the genre for years to come, more and more original science fiction began to appear in book form in the 1950s. Thus, the end of the 1940s marks a shift in the types of narratives circulated through the science fiction community. Finally, the end of the 1940s was also the end of the U.S.'s tenure as the world's sole nuclear power. This shift in Cold War tensions also meant a significant shift in science fictional considerations of humans' relationships with advanced science and technology.

Chapter 1 examines how the science fiction community viewed science and technology over the course of World War II. Although aware of the potential for widespread death and destruction that advancements in these fields could cause, the science fiction community during the war years viewed the relationships between humans and machines as a generally positive force for the future.

Chapter 2 considers the postwar science fiction community. The texts published in *Astounding Science-Fiction* in the latter half of the decade reveal an interest in "improving" the functioning of the human mind to be more like that of computational machines. This interest in what I call "thinking better" enabled adherents to see science and technology as a way to solve socio-political problems.

The second half of this dissertation examines how the science fiction community's evolving portrayals of the human-machine relationship intersected with changing gender norms. Chapter 3 examines how science fiction both reflected and enacted patriarchal attempts to minimize the role of women in science (fiction) during the war. I argue that during this period female characters were portrayed as either Professors' Daughters or In-Human Woman. Both archetypes attempted to (re)contain women in the domestic sphere in response to the disruptions of World War II.

Chapter 4 focuses on how the postwar retrenchment of gender norms was understood by the science fiction community. Despite an interest in embracing science and technology, the science fiction community's portrayal of female characters during this period reveals anxieties about the effects of such developments on patriarchal gender norms. Female characters were often tied to the domestic sphere and/or portrayed as erotic objects for the heterosexual male gaze. I read these portrayals as attempts to separate woman from (masculine) science and technology. These attempts were complicated, however, by the increased presence of women in the science fiction community.

As a whole, this dissertation extends the history of science fiction's engagement with the relationship between (gendered) humans and machines. It argues that while the science fiction community often expressed a clear interest in integrating humans more fully with machines and machine systems, it resisted attempts to re-define the human Self as other than white, male and heterosexual. The texts considered here laid the groundwork for later movements but many were lost or forgotten with the death of the

pulps. This dissertation also investigates how fans helped to shape the genre's development of some of its core themes. Although fanzines are important to the history of science fiction, their ephemeral nature means that scholarly knowledge of their contents and influence is partial and incomplete. By restoring fans' voices to the genre's conversation about the relationship between (gendered) humans and machines, this dissertation is able to give a more complete picture of issues that continue to shape science fiction and American culture today.

CHAPTER 1: SCIENCE, TECHNOLOGY, AND WORLD WAR II

The closing years of the 1930s was a time of change within the science fiction community. Since Hugo Gernsback began publishing *Amazing Stories* in 1926, the science fiction market had become firmly established. There were now numerous publication outlets for science fiction, including *Astounding Science-Fiction*, which John W. Campbell, Jr. became editor of in 1937. Science fiction fandom had also grown in strength and numbers over the course of the decade. Fans organized the first World Science Fiction Convention in New York in July 1939. The widespread social dislocations and technological advances of World War II also had wide-ranging impacts on the still-young science fiction community. This period, from the late 1930s until the end of the Second World War, laid the groundwork for much of what would come after in both the science fiction community and the larger cultural systems that surrounded and influenced it. The science fiction published in *Astounding Science-Fiction* as well as fans' comments in letter columns and fanzines reveal that science and technology were largely viewed as positive forces by the science fiction community both before and during the war. Especially in the fiction published in *Astounding Science-Fiction*, potential problems related to science and technology were largely displaced onto "illogical" humans while a fuller integration of machines into human society was framed as desirable.

Pre-War Science Fiction

The early years of the genre often saw space operas in which All-American heroes defeated hostile aliens with little more than their wits and a trusty ray gun. In

stories like these, science and technology were portals to adventure. It is not surprising, then, that such narratives had a generally enthusiastic approach to advanced science and technology. The genre increasingly moved away from space operas as the 1930s drew to a close, but this positive view of science and technology persisted. This remained true even in highly technical stories such as Willy Ley's *Orbit XXIII-H*.[4] Published in the September 1938 issue of *Astounding Science-Fiction,* this novella is an excellent example of the magazine's tendency to side-step discussion of the negative effects of science and technology. The narrative is set in a future when interplanetary travel is common and there are established human colonies on the Moon, Mars and Venus. It begins with a shadowy group, strongly implied to be the Japanese, seizing control of a new form of rocket technology which will enable the exploration and colonization of the solar system's outer planets. Opposing them are the Space Guard, whose members foreswear all pre-existing national ties in order to uphold Interplanetary Law, which dictates that "'…there shall there be…[no] difference of creed, color, race, religion and nationality before Interplanetary Law'" (Ley 27). This multi-national group is tasked with maintaining "'…order and peace, even in the case of war on Earth'" (Ley 27). That the Space Guards' vow contains an explicit reference to "war on Earth," implies that war is still a threat that must be diligently guarded against, even in the peaceful, enlightened future of the novella. Ley's Space Guard is clearly based on the founding ideals of the League of Nations, but it ignores many of the issues that made the actual League largely ineffective. In fact, the story suggests that the Space Guard's success is due to its physical

[4] *Orbit XXIII-H* was originally published under Ley's pen name "Robert Willey."

separation from Earth, via space-faring technologies, which enables its independence from flawed terrestrial politics.

The Japanese, with their pirated rocket technology, now pose a danger to the currently inhabited planets. Learning of the threat, the Space Guard mobilizes for a confrontation, determined to (re)claim this new technology and prevent further conflict. The final (and only) battle between the two forces takes place on Titan, a moon of Saturn, far removed from any civilian populations. The Japanese arrive long before the Space Guards' own ship and, despite their superior technology and advanced warning of the Space Guards' approach, the Japanese are easily defeated. In addition to the Space Guards' sound defeat of their opponents, the narrative makes it clear that the Japanese do not have the ability to create advanced technological wonders themselves: "'there is a nation of Earth that, never producing anything for civilization themselves, were the best pupils other nations ever had. They began as pupils of the great Chinese nation. Later, when they had learned the secrets of the West, they turned against their first teacher'" (Ley 55). This dismissal of the technological and scientific potential of a non-Western nation extends to the overall characterization of the Japanese in the novella which goes out of its way to minimize the dangers they represent. The Japanese must steal the new rocket technology as well as kidnap its inventor as they are unable to even independently reproduce it without expert guidance. Their military strategy largely consists of tricking others, a task they repeatedly bungle. They leave behind a key witness to their theft/kidnapping, do nothing about the various government agencies that have been tracking them, and fall for a simple ruse on Titan.

This refusal to recognize the Japanese as a serious threat, even as they menace not only Earth but the rest of the Solar System as well, reflects larger cultural beliefs of the period. During the 1930s, Japan's aggressive military campaigns in the Pacific and Asia led to increasing tensions with the U.S. According to a Gallup poll conducted just prior to the attack on Pearl Harbor, approximately half of American citizens expected to eventually go to war with Japan (*Public Opinion* 149). Although U.S. military bases in the Pacific were on alert, most people did not believe that Japan was capable of the devastating attack on Pearl Harbor until it actually occurred. The "date which will live in infamy" was a surprise to the U.S., at least in part, not because Japan lacked the necessary technological and military resources to carry it out, but because Americans *believed* that it did not. In this context, *Orbit XXIII-H* highlights the belief that any temporary technological advantages possessed by an enemy would be reclaimed and repurposed before they could pose any real threat to American men and women. Thus, Ley's story manages to both acknowledge the threat posed by a technologically powerful hostile force while simultaneously attempting to minimize that threat by displacing it onto a perceived racial inferiority.

Orbit XXIII-H's portrayal of technological innovation also illustrates the techno-optimism frequently found in the pages of *Astounding Science-Fiction* during this period. Despite being explicitly linked to a group characterized as ruthless and bent on starting interplanetary conflict, the new rocket technology itself is never represented as any real threat to peace and security. The greatest tragedy, and one which the characters repeatedly mention, is that the discovery is being used for military purposes rather than

for exploration. Now safely under the control of the Space Guard, the new rocket technology will enable mankind to further explore the solar system. It also extends the jurisdiction of the quasi-military Space Guard, whose control of the new technology will enable them to more easily enforce their mandate. This is framed as a positive outcome, which suggests an attempt by the narrative to deny the links between the military-industrial complex and science. That the potential military applications of the new rocket technology are so easily (re)contained further implies that technology itself is an inherently positive force in human society.

The belief that science and technology are positive social forces, and that potential problems are only minor deviations from the norm, can also be seen in Eando Binder's short story "Orestes Revolts," published a month after *Orbit XXIII-H* in *Astounding Science-Fiction*.[5] This story features many stock science fiction characters including a (slightly mad) scientist, his lovely daughter, and the long-suffering narrator whose attempts to propose to the daughter are continually interrupted by the scientist's latest invention. The plot is also a recycled one: the scientist uses electricity to give life to an assembled (mechanical) body but then loses control of his creation which becomes violent. Like the novel it borrows from, "Orestes Revolts" reveals much about how the human Self was viewed by contemporary society. The scientist, Dr. Fothergill, explains the theory behind his latest invention to Ian, the narrator: "'After many years of thought and labor, I've reduced the human brain to a system of volts and amperes. All thought, I

[5] The pen name "Eando Binder" was used jointly by brothers Earl and Otto Binder. Otto also occasionally used "Eando Binder" for works he wrote alone. Given the publication date of "Orestes Revolts," the story is likely the result of a collaboration between the two men. I have chosen to use the pen name here to acknowledge that fact.

believe, can be expressed in electrical terms. More, thought can be transmitted along wires, like electricity'" (Binder 45). Although Ian is doubtful that the experiment will be successful, he does not raise any objections to the doctor's theory that there is no real difference between a human brain and a system of electrical relays.[6]

Although the robot, Orestes, does eventually come to life, it fails to develop a sense of self, much to the doctor's frustration. Orestes learns by being connected, via an apparatus, directly to a human mind which must "think" knowledge at the robot. Given this intimate connection, as well as the supposed similarity between the human brain and the robotic one, it is somewhat surprising that Orestes never achieves a sense of selfhood. The narrator, who is the only point of view the reader has access to, makes it clear that such a hope is a vain one. Thus, the story argues for two seemingly contradictory ideas: the human brain is something that can be thoroughly understood and reproduced and that the human mind is something indefinable and therefore irreproducible. They are only seemingly contradictory because linking the two ideas allows the narrative to argue both in favor of human scientific potential and that humans are unique. They can be understood but they cannot be copied. Thus, humans can use science to achieve mastery over the most difficult of subjects (humans themselves) while still maintaining their supremacy over their technological tools.

This confidence in humans' ability to maintain control of science and technology is further highlighted when Orestes literally reenacts the plot of *Frankenstein.* Despite

[6] This is an early example of the science fiction community's conception of the human mind as (ideally) similar to that of a machine. This belief would become more common after the war and will be discussed in more detail in Chapter 2.

repeatedly insisting that Orestes "'…it is a living entity[.] It has a mind of its own,'" Dr. Fothergill eventually concludes that the experiment is a failure and decides to dismantle the robot (Binder 52). Before he can do so, however, the robot fights back, asserting that "'I—am—alive!'" (Binder 54). Despite being faced with a potentially murderous robot, the narrator remains calm and disables Orestes by knocking a bottle of acid onto him. Thus, any potential threat this manufactured human might have possessed is neutralized before Orestes has time to do anything other than make declarations. His potential selfhood is subsequently undone as the narrative explains that Orestes was not actually declaring that he was a thinking, living being but rather reenacting a sensationalized radio broadcast of Shelley's novel. This connects "Orestes Revolts," not to *Frankenstein*, which highlights the consequences of scientific hubris, but to a radio "horror" program that ignores the narrative's existential elements in favor of cheap thrills. In fact, the only real threat Orestes ever poses to anyone is to the narrator's attempts to propose to his sweetheart. Thus, a potentially dangerous, out-of-control piece of advanced technology is reduced to an easily contained annoyance on the path to heteronormative bliss.

Fans' responses to the two narratives also largely side-stepped discussing the potential dangers of newly developed science and technology. "Orestes Revolts" was popular with readers, many of whom emphasized their enjoyment of the humorous elements of the story even as some noted that the plot was largely forgettable. One reader stated that Binder's story was "Humorous, just as I like 'em. It seems that more and more humor is turning up in s-f. all the time. It used to be all dry, tough stuff" (Strother 158). No readers make the connection to Shelley's *Frankenstein*, although that may be because

it was too obvious to merit comment. This means, however, that there was no discussion of how the story intersects with the novel's exploration of what happens when science escapes its creator's control. The focus on the story's humor enabled readers to see Orestes, not as a monster who repudiates his master, but as a comic figure. This suggests that out-of-control science and technology were not seen as serious issues by the readers of *Astounding Science-Fiction*.

Although Ley's *Orbit XXXIII-H* was described as an example of "When technology advances beyond the vision of the makers of outdated treaties—TROUBLE STARTS!"[7] readers' letters did not discuss the challenges of maintaining control over easily misused technologies (*Astounding* Sept. 1938 2). Instead, fans focused on the quality of the novella's writing rather than on its themes. *Orbit XXXIII-H* was generally unpopular with fans. One fan, for example, argued that it had "… a rambling plot, poorly constructed, uninteresting" (Jensen 158). Asimov, who could be counted on for long, detailed letters even while still a teenager, offered the following critique:

> 'Orbit XXIII-H,' [is] an example of ultra-conservative science-fiction. It was as realistic as could be, as cold and emotionless as a statue and not half as lifelike. Reading through it was like laboring through some sort of scientific treatise. [The author]…is entirely too painstaking and too serious about the story. If he had loosened up a bit, and had been a little more airy. I might have liked it. As it was, I went to sleep in the middle. (Nov. 1938 159)

[7] Until the end of 1943, *Astounding Science-Fiction* featured brief "teasers" for each story in the issue's Table of Contents. They usually described the central conflict of the narrative in sensational language. Such elements were fairly common in pulps as a way to encourage people to buy the magazine in order to read the story.

The few words of praise the story did receive, even from those who disliked it as a whole, were for its technical accuracy. Campbell was also careful to note that Ley was a rocket engineer, thereby further enhancing the story's scientific credibility ("Analytical" Nov. 1938 150). This emphasis on the technical qualities of science fiction enabled readers to avoid discussing the negative implications of the advanced technologies featured in such narratives. As shall be discussed below, letters and articles in fanzines reveal that fans were interested in socio-political questions. Thus, their silence on the issues implied by *Orbit XXIII-H* and "Orestes Revolts" suggests that they did not (or would not) acknowledge the potential negative social effects of science and technology, despite the growing tensions in Europe.

The belief that even when such developments caused problems, they were still for the better was also held by *Astounding Science-Fiction*'s editor. In a radio address given on December 29, 1938, John W. Campbell, Jr. argued that the golden age of mankind still lay ahead and the achievement of it depended upon scientific inquiry and discovery. Although he mentions "…the social upheavals [scientific discoveries] will produce…," he seems generally unworried by the prospect, arguing that science fiction "may help us to predict some of the social upheavals and…in some slight measure prepare for them" (Campbell "Science Fiction" 8). Clearly, the *Astounding Science-Fiction* community preferred to see science's logical approach to problems as a way to solve social ills, rather than as recursively connected to a larger cultural matrix.

This attitude was further reflected in fans' reactions to Orson Welles's October 1938 broadcast of *The War of the Worlds*. Their comments on the incident were largely

self-congratulatory that they had been too knowledgeable about scientific principles to be taken in by the hoax (unlike their foolish neighbors). The editor of the fanzine *Science Fiction News Letter* suggested that "…the uneasiness caused by the recent European war scare and the inability of some people to listen to radio programs from the beginning, caused thousands in the U.S. & Canada to flee their homes, many with damp cloths wrapped around their faces as protection from 'poison gas'" (R. Wilson 1). This statement does acknowledge that people might have had reasons to be concerned about invasion by rocket, but it also makes it clear that the true problem is people's foolishness. In *Astounding Science-Fiction*, Campbell's reaction to Welles's broadcast was to suggest that science fiction is an excellent "…means of teaching those members of the American Public with an excess of imagination with respect to radio dramas, and a lack of understanding of things interplanetary, just what chances the Martian Invaders would have" ("Variety" 6). This dismissal of the popular reaction to Welles's broadcast is especially interesting as the October issue of *Astounding Science-Fiction* featured a science article by Peter van Dresser discussing the current state of rocket research and development. It would have been the most recent issue of the magazine when Welles broadcast *The War of the Worlds*. Campbell's focus on the average citizen's lack of scientific knowledge ignores other potential causes, such as the link between viable rocket technology and a surprise attack from the skies. This attitude towards science (fiction) allowed the science fiction community to see science and technology as positive social forces—as long as they remained under the control of intelligent, scientifically-minded individuals.

This optimistic view of science and technology is further highlighted by an article published in the fanzine *The Science Fiction Fan* in August 1939. In it, the author discusses the potential new horrors science might unleash during the looming global conflict. The author, who writes under a pseudonym, argues that "War, famine, economic crisis are all man-made, man-controlled and predictable" (The Vagrant 4). Although there is some truth to this statement, it ignores the original issue of the role of science in such events. Even after the author notes that "To a certain extent, destruction will be uncontrolled; a certain amount of appalling slaughter will be allowed…," he seems relatively unconcerned about the lives and livelihoods of those caught in such conflicts (The Vagrant 4). The real cause of these tragedies, he argues, is not science but "an economic system which makes such a society as the present one (and all that goes with it war, economic insecurity for millions, famine, scientific prostitution, etc.) inevitable" (The Vagrant 18). Like fans' reactions to fictional examples of the destructive potential of science and technology, this article suggests an unwillingness to take a close look at the ways in which science (fiction) reflects and enacts cultural assumptions and ideologies.

Fans, Politics and Science (Fiction)

Although such statements might suggest that fans were uninterested in the socio-political implications of contemporary science (fiction), fanzines from the period contain numerous discussions about the role of politics in science fiction. 1938 and 1939 witnessed a heated debate about the purpose of science fiction and the role of politics and

sociology in that purpose.[8] At the center of the debate were two well-known fans: Sam Moskowitz and Donald A. Wollheim. New Fandom, a group led by Moskowitz, argued that politics had no place in science fiction while the Futurians, Wollheim's organization, argued that not only did politics belong in the genre, fans should use science fiction as a way to improve society.

The Futurian point of view was outlined in a manifesto of sorts, entitled "Mutation or Death," which was written by John Michel and read at the Third Eastern Science Fiction Convention in October 1937. It argued that science had become "…too secure in its ivory tower to pay much heed to the wails and groans (and pardon me if I use this old bromide) of suffering humanity" (Michel "Mutation"). The Futurians argued that science fiction had the ability to challenge the scientific establishment, but first it needed to shake off its escapist roots and engage with the problems of the day. The Futurians shared many of Communism's ideals and exhorted the science fiction community to "'Smash this status quo of ours by smashing the present existing forms of economic and social life!'" (Michel "Mutation"). The Futurians argued that fans' interest is science (fiction) meant that they could look at facts clearly and reach sound, logical conclusions based on those facts. They further felt that science fiction's interest in the future encouraged a kind of techno-optimism among fans who did not just hope for a better future but saw science as a way to get there.

Michelism, as this blend of Communist principles and science fiction would become known, declared that:

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[8] Although "politics" and "sociology" have very different definitions, they were used interchangeably by fans during this debate.

> It is our [fans'] job to work and plan and prepare, to teach and expound for the coming of that day when the human race shall stand erect as should a man and gaze on the stark, naked cosmos with firm eyes, to feel the solid, inconceivable impact of the grim void, to flood its consciousness with the realization that in the vast emptiness we must stand on our own feet and fight it out! (Michel "Mutation")

Although the Futurians' Communist leanings meant they were aware of the negative effects of social inequality on humanity, this declaration explicitly focuses on science as a path to the stars and connects science, science fiction, and the potential of the human race. It further frames logical science as a way to "tame" the natural chaos of the universe. Although science and technology had arguably improved the standard of living for millions of people, the Futurians' failed to acknowledge how science and technology can also be used to enforce an unequal status quo. Although Communism was not as socially or politically divisive as it would be during the Cold War, it was still seen as a controversial ideology. Many fans rejected Michelism outright, and the Futurians' call for action was soon countered by Moskowitz and New Fandom.

It is hard to pinpoint exactly when or how the animosity between Moskowitz and Wollheim began as the various participants subsequently revised their versions of events to positively reflect their roles in the feud. A beginning, however, is an article in Moskowitz's *New Fandom* discussing science fiction and what the author calls "smelly politics" (Farsaci 7). Entitled "They Just Don't Mix," the article argues that science fiction is no place for politics: "Science-Fiction was never meant to go places politically.

Its major purpose was always to entertain the reader" (Farsaci 8). The author is careful to note that science fiction fans should be involved in politics because they are the "closest to being true citizens by our enthusiastic interest in progressive development…. But we must never, in any material way, mix together science and politics" (Farsaci 9). Likely written in response to "Mutation or Death," this article not only attempts to draw a line between politics and science fiction but also a line between politics and science in general. Yet it also views fans as ideal citizens due to their interest in science (fiction). This article, then, accepts the Futurians' basic claim that science and technology are positive social forces. By doing so, it highlights how widespread this belief was in the science fiction community during this period.

A strong belief in science's objectivity meant that many fans disregarded the influence socio-political issues can exert on scientific endeavors. John Huntington's examination of Golden Age science fiction in *Rationalizing Genius: Ideological Strategies in the Classic American Science Fiction Short Story* traces a similar desire to deny the role of politics in professional science fiction texts. Huntington argues that "the achievement of nonpolitical power, is in some sense the goal of all the mechanisms of SF" (45). He links this desire with the genre's emphasis of the importance of objective scientific reasoning. Created by disinterested science, the products of scientific inquiry should theoretically be free of irrational human emotions. Huntington further argues that this denial of the power of ideology to shape science causes contradictions at the heart of many of the genre's most well-known tropes. Science fiction's obsession with genius, for example, both idealizes a meritocracy in which brilliance is rewarded but also

necessitates the creation of a system in which genetic heritage overrules individuals' ability to determine their own futures. Huntington's analysis focuses only on professionally published texts and does not consider the larger science fiction community. However, the same contradictory impulses are at work in New Fandom's denial of the connections between science (fiction) and politics while arguing for science and technology as positive social forces. This mental sleight of hand allowed members of the community to remain committed to the scientific ideal of objectivity while also arguing for the genre's social relevance.

When Hugo Gernsback first began publishing *Amazing Stories* in 1926, he argued that science fiction had an educational value and could make scientific concepts and discoveries more accessible to the general public. This principal was, at least nominally, the driving force behind the founding of the Science Fiction League (or, SFL). Created by Gernsback in 1934, the SFL provided fans with "chartered membership certificates for SFL local branches, lapel buttons and club stationery" ("Science Fiction League"). Although ostensibly about promoting science fiction and helping local fan groups organize, Gernsback's primary goal for the SFL was to increase readership of his magazine, *Wonder Stories*. The Futurians' interest in the social purpose of science fiction was partially in reaction to the SFL's conflicting social and economic agendas.[9]

By the time of the New Fandom-Futurian feud in 1938 and 1939, most fans agreed that science fiction was a poor way to learn about science. There did, however, seem to be a shared sense that science fiction, unlike other fiction published in the pulps,

[9] The SFL collapsed after Gernsback suffered one of his periodic financial crises in 1936. Most of the clubs it helped form disbanded soon after.

did more than just entertain the reader. Fans claimed in letters "…that even the idea of science-fiction having any purpose or aims in politics is ridiculous. There is no analogy or connection whatsoever between the two subjects" (emphasis in original, Smith 19). But fan polls show that fans were generally in favor of science fiction exploring social concerns (Speer "IPO" 4).[10] Fans' discussions of the larger social purpose of science fiction can be found in both professional and amateur publications. In a letter published in the October 1938 issue of *Astounding Science-Fiction*, one fan criticized Arthur J. Burk's "Hell Ship" for "…projecting without imaginative alteration the [social] set-up you happen to be born in" (Verniud 156). The letter further argued that as technology changes so too will the social norms that structure interpersonal relationships, and this is an important factor to consider when crafting narratives set in the future. Within the fan community, even the theoretically apolitical *New Fandom* featured articles about the role of socio-political concerns in science (fiction) in nearly every issue.

Although the participants in the debate changed based on the publication context, the debate itself continued at both the professional and fan levels. Despite claims to the contrary, fans' continuing interest in the subject suggests that socio-political questions were important concerns of the science fiction community. Even those who nominally opposed politics in science fiction, such as New Fandom, argued that science (fiction) could have positive effects on society due to its logical nature. The Futurians, then, made manifest the discourses already circulating in the science fiction community: science

[10] The same poll shows that fans' real objection was to fan feuds, politically motivated or otherwise. The Moskowitz-Wollheim feud was not science fiction fandom's first bitter rivalry, nor would it be the last, and it is not surprising that fans were tired of personal conflicts.

could, and should, be used to improve human society. This discussion foreshadowed what would be a dominate concern of the postwar science fiction community: an interest in using science to make humans think more like logical machines. During the war, these political discussions shaped how professional science fiction portrayed the human-machine relationship, especially in the case of manufactured humans.

Science Fiction Goes to War

This insistence on viewing science and technology as positive social forces began to undergo subtle shifts after the start of World War II. As the devastation and loss of life accelerated, science fiction published during the war began to argue that the real source of such problems was humans who used science and technology for evil ends. Thus, even as the negative effects of scientific and technological developments were acknowledged by the science fiction community, they were displaced onto "irrational" humans. This reframes science and technology (and manufactured humans) as sources of logic and stability amongst human-caused chaos. This, of course, was not a radically new technique. *Orbit XXIII-H*, for example, had drawn a distinction between the new rocket technology and the "evil Asians" who had temporary control of it. But unlike Ley's 1938 story in which peace and harmony are quickly and easily restored, science fiction published during the war often took a more pessimistic view of the kinds of futures misguided humans might create.

Published shortly after the war began, "Rust," by Joseph Kelleam, is set on a devastated future Earth. As the story progresses, it becomes clear that "'Men learned to make more than they could control,'" and in doing so, caused their own extinction

(Kelleam 201). Three robotic soldiers are now all that is left of humanity besides ruined cities. Originally designed to kill particular groups of enemies, the robots were programmed too well and eventually exterminated all humans. As one of the few remaining robots notes, "'Men made us for killing men. That was their crime. Can we help it if they made us too well?'" (Kelleam 202). Even now that there are no humans, the robots are unable to overcome their programming. One tries desperately to assemble a new robot, hoping to replace those of its kind who have worn out and "died," but it is unable to bring the assembled parts to life. It states mournfully that "'Men did not make us for life; they fashioned us for death'" (Kelleam 197). The robots strive to overcome their destructive nature, suggesting that science and technology are "naturally" creative forces. These robots, however, have been so crippled by their programming that they are unable even to create art because doing so would be a creative rather than destructive act. Here, it is not technology explicitly designed to wage war that it is at fault, but rather human short-sightedness that created such pitiful monsters. Because humans used technology for wholesale destruction, they and not the robots are responsible for wiping out the human species. For "Rust," this is a tragedy on multiple levels. Humans perverted technology to wage war and, in doing so, not only destroyed themselves, they also destroyed their progeny. The story's tragic elements also function as a warning: science and technology need not lead to this future if humans work to avoid their misuse.

In his *Robot* series, Isaac Asimov suggests that manufactured humans may simply be better than biological humans. An early entry in the series, "Reason," finds two humans debating with a manufactured human if biological humans or robots are the

superior creatures.[11] The robot points out that "'The material you [humans] are made of is soft and flabby, lacking endurance and strength, depending for energy upon the inefficient oxidation of organic material'" (Asimov "Reason" 52). Robots, however, are "'…a finished product'" and can "'…absorb electrical energy directly and utilize it with an almost one hundred percent efficiency…. [They are] composed of strong metal…and can stand extremes of environment easily'" (Asimov "Reason" 52). Faced with such logic, the two humans are unable to persuade the robot it is in error. And while they are frustrated by the robot's condescending attitude, it is demonstrably better at the job for which it was designed than humans could ever hope to be. Although the narrative seems to address fears that humans will be replaced by technology, "Reason" largely side-steps the issue of the fate of the human workers who might be displaced by machines which make no errors. The narrative's techno-optimism argues that some tasks are truly better left in the hands of manufactured beings. Read alongside Kelleam's "Rust," Asimov's story suggests that humans' flaws can only lead to disaster. A fuller integration of science and technology into human society is desirable, even if it causes temporary frustration or discomfort for biological humans.

Published in the latter half of the war, Theodore Sturgeon's novella *Killdozer!* argues that humans are ultimately more dangerous than science and technology. Published in the November 1944 issue of *Astounding Science-Fiction*, the novella focuses on a small military construction crew tasked with building an airstrip on a nameless Pacific island. Soon after their arrival, one of the bulldozers begins attacking and killing

[11] "Reason" was published in the April 1941 issue of *Astounding Science-Fiction*.

the men. *Killdozer!* was published shortly after the disappointing results of the Allies' Market Garden Campaign and perhaps the story's killer bulldozer reflects anxieties about the Allies' ability to quickly win the war despite their technological might. In the case of Sturgeon's story, however, the bulldozer only becomes a threat due the influence of outside forces. In this case, it is literally possessed by a sentient, hostile electron cloud. Until then, the D7 bulldozer had been a well-functioning piece of American machinery.

The D7 begins its killing spree by fatally wounding the only non-white member of the crew, a young Puerto Rican man named Rivera. A mechanic by trade, Rivera persuades the crew foreman to let him take the D7 on a trial run during which he is suddenly thrown from the machine and his back is broken. Not realizing that the machine has been possessed, the other men blame Rivera's lack of experience for the accident. Even after the D7 inexplicably moves a substantial distance (in an attempt to finish killing Rivera), the rest of the crew refuses to listen to Rivera's warnings that the bulldozer has become a killer. The second person to die is the older mechanic, Peebles, who is electrocuted while trying to repair the D7. Although the narrative makes it clear that it is a mistake for the crew to ignore these incidents, the deaths of both of the blue-collar members of the team so early in the story also implies that they are less essential than the rest of the group who come from more socio-economically privileged backgrounds. This suggests that while the two working class men are capable of working with machines, they will never be capable of mastering the advanced technologies of the coming era. Although three more members of the crew eventually die, their deaths serve a different narrative function than those of Rivera and Peebles. The crew's inability to

face facts puts the entire group in danger, and the later three deaths are used to underscore this threat. So while the deaths of Rivera and Peebles establish the threat represented by the machine, the later deaths demonstrate the threat posed by irrational humans. That the second group is larger implies that humans pose more of a danger to each other than does a (killer) machine.

The leader of the crew, Tom Jaeger, is the only witness to the D7's attack on Rivera. Despite clear evidence that the machine is dangerous, the crew refuses to believe Tom and instead accuses him of murdering Rivera and Peebles himself. Here, *Killdozer!* acknowledges the problems inherent in shifting the blame from machines to people. Not believing that machine could cause destruction independent of human agency, the group's faith in humans' ability to fully control their machines puts them all in danger. The reader, however, is aware that the D7 is possessed by an evil entity and thus knows that Tom is right that the machine is acting on its own. This exploration of the dangers of machines to a group of workers could also be read as an expression of concern about the (vanishing) role of the human worker in automated environments. But the D7 is not actually a self-aware machine. The non-human entity that has possessed is directing its actions. Thus, it is not the machine which is hostile to humans but rather another Self that is simply using the bulldozer as a tool to achieve its goals. It is that Self, not the machine, which must be defeated.

Eventually vindicated, Tom and the surviving members of the crew devise a plan for defeating the D7. This plan—which involves traveling to several locations around the island, avoiding a murderous machine, and tricking the D7 into a fairly obvious trap—is

remarkably successful. The sentient cloud of electrons which possessed the D7 had been trapped for millions of years after the rest of its kind had been eradicated by a weapon which "…dissolved [the earth] in flame, the crust writhed and shook and the oceans boiled. Nothing escaped it" (Sturgeon 166). Although the sentient electron cloud now loose on the island is described as weak, it is still able to quickly possess the nearest sophisticated machine and use it to kill several people. Tom and his companions, however, are able to defeat this remarkable and resilient creature simply by using a welding arc to electrocute it. Thus, much like in *Orbit XXIII-H,* American ingenuity is able to defeat a seemingly unstoppable opponent. The body-count is higher this time and the survivors are badly shaken by the incident, but they do not lose faith in their technology or in their ability to use it. This suggests that, despite the horrors of World War II, science fiction's techno-optimism remained strong even as the war accelerated towards its conclusion.

Once the survivors have killed the creature inhabiting the D7, they must face yet another threat. Realizing that no one will believe their story of a killer bulldozer, they are at a loss for how to explain the deaths of the other men and the destruction of the construction machinery. Fortunately, an enemy bombing of the island provides a perfect cover story. Here, actual destructive technology in the hands of an enemy force is used to prevent the survivors from potentially facing a military tribunal which would order the men "…shot for sabotage. And murder" (Sturgeon 251). Once again, it is not the machines of war that are a threat but rather human incredulity. Even technologies designed for killing and which are under the control of hostile human operators are able

to assist the men in constructing their own narrative about the events. Thus, even as *Killdozer!* confronts the effects of destructive technologies, it displaces the threat onto human agency and fails to fully address the issues related to the use of such technologies. Despite the devastation of the war, *Killdozer!*, along with many other science fiction narratives from this period, insists that the negative effects of science and technology were primarily felt by those who "deserved" them in some way. Much of the science fiction published in *Astounding Science-Fiction* continued to portray science and technology as positive forces over the course of the war; negative effects were attributed primarily to human failings. When new inventions or techniques did escape the control of their creators, "good" individuals were generally able to contain the damage. Doing so, however, had become more difficult than it had been in 1938. This faith in the inherent "goodness" of science and technology laid the groundwork for the methods of human-machine integration embraced by the community after the war (discussed in Chapter 2).

Science and Society

The emphasis on the positive value of integrating science and technology into daily life appears even in narratives which seemingly challenge this optimistic view of advanced technologies. First published in 1943, Kuttner's "Ghost" features integrators, calculating machine brains that "…could answer questions. They could solve complicated problems. They could compute a meteorite's orbit within minutes or seconds, where a trained astrophysicist would have taken weeks to get the same answer" (108). Their operation depends on human staff who, in turn, depends on the integrators to perform tasks that are beyond the capabilities of humans. The manufactured human in

"Ghost," then, is the integrators plus staff, creating a distributed cyborg assemblage. In this way, the narrative is able to dramatize the often fraught relationship between humans and advanced machines.

The story opens with the revelation that the integrators share an important characteristic with humans: they can go crazy. To be more precise, "'Certain parts of the integrators were like blank records. Intangible parts that were the corollary of a finely tuned thinking apparatus…. The abnormally sensitive integrators recorded a mental pattern and are reproducing it'" (Kuttner 111). In this case, they are reproducing the brain patterns of a manic-depressive scientist who worked closely with the integrators. This scientist, Dr. Bronson:

> "…killed himself on the downbeat of his manic-depressive curve, that period of intolerable depression, and the mental explosion—the sheer concentration of Bronson's madness—impressed itself on the radioatom brains of the integrators…. The electrical impulses from those brains keep sending out that pattern—the downbeat. And the integrators are so powerful that anyone in the station can't help receiving the impressions." (Kuttner 113)

In other words, not only are the integrators suicidal, they are making everyone else feel the same way. This suggests that intimate relationships between humans and machines can have negative consequences. It is worth noting that the integrators themselves are working perfectly. They still compute complex equations and provide accurate answers. Even the broadcast of suicidal feelings is a result of the mechanical brains' proper functioning, albeit an unintended one. They were given data, emotions, and are

reproducing that data in the same form. The problem, then, is with humans and, more specifically, with "irrational" human emotions. If the original scientist had been more mentally stable, that is more like a well-functioning machine, he never would have committed suicide. Furthermore, human susceptibility to such emotions is what is now causing problems for the integrators' operators. If they too were like machines, the emotional broadcast would not impair their ability to perform their designated tasks.

The integrators also pose little threat to the larger world. Located underground on the Antarctic continent, they are far removed from most of the human population. The staff of the station is limited and once they leave the integrators behind, they quickly recover from the ill effects of the emotional broadcast. The experience may make the human operators a temporary danger to themselves, and perhaps to the integrators, but it does not turn them into homicidal lunatics either. Thus, "Ghost" admits that such powerful technologies can have unintended side-effects, but still insists they are limited in scope and are the result of (human) operator error.

Taking a slightly different approach to mankind's relationship with technology, Harry Bates's *Farwell to the Master* is perhaps best known as the inspiration of the 1951 film *The Day the Earth Stood Still*. The story, however, differs in several respects from its more famous adaptation. Instead of Klaatu simply being wounded by a trigger-happy solider, he is killed by a random lunatic unaffiliated with any governmental group. In an attempt to atone for killing humanity's first interstellar visitor, the people of Earth give Klaatu an elaborate funeral and inter his remains in a monument. They also build a museum to house Klaatu's spaceship and his motionless robotic companion, Gnut.

The narrative begins after these events have already taken place and focuses on Cliff Sutherland, a freelance reporter who was also one of the first witnesses of the spaceship's arrival. Sutherland soon determines that the seemingly immobile Gnut has been roving about the museum at night to gather materials for a device that can create a new version of Klaatu. Realizing that the robot is aware of its surroundings, Sutherland repeatedly urges Gnut to tell his master, Klaatu, that the people of Earth are anxious to establish peaceful relationships with other space-faring civilizations. As Gnut prepares to leave, he tells Sutherland that "'You misunderstand,' the mighty robot…said. 'I am the master'" (Bates 815). This final twist suggests that we humans are so focused on our own sense of superiority it never would occur to us that a robotic being could be better. This is not meant to be read as a warning that humans will be wiped out by our mechanical progeny, however. It was a biological being, after all, who killed Klaatu and despite this aggressive act on the part of humans, Gnut does not retaliate. He simply retrieves his companion and departs. With a mind unclouded by irrational emotions, Gnut knows "'that what happened to the first Klaatu was an accident, for which all Earth is immeasurably sorry'" (Bates 815). Mankind may be sorry for its violence, but its inability to recognize Gnut as the superior being implies that humans are still unable to logically face facts. The story argues that before we can move forward as a species, we must be willing to recognize when our tools are superior to ourselves. Perhaps they already are.

In *Beyond this Horizon*, Robert A. Heinlein proposes a rigorously scientific method for restraining humanity's inherent irrationality.[12] Serialized in the April and May 1942 issues of *Astounding Science-Fiction*, this novel is set in a future that has solved almost all of mankind's problems including war, poverty, and disease. The future society Heinlein describes in *Beyond This Horizon* is capable of genetic engineering, but the practice is strictly forbidden. Instead, individual's DNA is sequenced and certain genetic lines are tracked in order to preserve beneficial mutations, making the process closer to selective breeding than to genetic engineering proper. When a couple decides to have a child, their DNA is examined and the best possible combination is selected for development. This process can easily be read as a kind of scientific "perfection" of the human being as if it were a machine with replaceable parts. The novel's main character, Felix Hamilton, is part of a "star line," which means that "'Every cell in…[his] body contains in its chromosomes the blueprint of a stronger, sounder, more adaptable, more [disease] resistant race'" (Heinlein 29). Although the government geneticists hope that Felix's line will be continued, theirs is not a coercive program. Instead, individuals such as Felix are encouraged to reproduce with others who also have advantageous genetic characteristics. Everyone, including Felix, is free to reject the geneticists' suggestions and marry whomever they choose.[13] There are, however, social pressures which significantly influence individuals' choices, a problem which the novel both acknowledges and side-steps.

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[12] *Beyond This Horizon* was originally published under Heinlein's pen name "Anson MacDonald."

[13] The novel does not argue in favor of the institution of marriage, per se. Extra-marital sex is common and adults are free to enter (or leave) more formal arrangements if they wish. However, it accepts as a given that parents of children should be married to each other.

In the world of *Beyond This Horizon*, everyone's basic needs are met. People are encouraged to earn additional income for their own enjoyment and/or for society's benefit. Some are more skilled or lucky than others and so there are still income disparities even in this seeming utopia. Although relative wealth does play a role in determining one's place in the social hierarchy, one's genetic heritage is a much more significant factor. Few members of a star line, for example, would ever consider marrying a "Control Natural," as people whose genetic heritage remains unmodified are known. People with better genetic lines also have access to more remunerative employment opportunities, although the government does provide Control Naturals with a bonus beyond the basic stipend. Thus, one's place in the world is determined not just by one's abilities or social connections, but literally by one's biological heritage. This stands in stark contrast to the novel's overt message of self-determination, but this issue is largely ignored by Heinlein.

In addition to creating a biologically stratified society, the selective breeding program also determines who will have children, albeit indirectly. No one is forbidden to reproduce or forcibly sterilized, but social pressure leads to an almost identical outcome. Parents may want to provide their children with every opportunity to succeed but those with less desirable genes have few options. As one childless Control Natural explains to Felix "'The material wasn't there. They had made up an ideal chart of the best that could be combined from my genes and my wife's and it still wasn't good enough'" (Heinlein 18). The "good enough" is not the geneticists' opinion but rather that of the Control Natural and his wife. Unable to create biological children who could succeed in this

brave new world, the two decided not to have children at all, thereby removing their genes from the social assemblage.

This flaw in an ostensibly non-coercive breeding system is introduced early in the novel but is minimized as the narrative continues. Encouraged to marry and have children with another member of a star line, Felix initially refuses as does his intended wife, a woman named Longcourt Phyllis. However, it is clear by the end of their first meeting that the two are attracted to each other. Although they stubbornly try to resist the match, the conclusion is inventible. Not only do they marry and reproduce, their children are the next step of human evolution. Instead of feeling that they have been superseded by their offspring, Felix and Phyllis instead look forward to the challenge of raising the first of the new kind of humans. The novel's overarching theme additionally suggests that if the two had resisted the geneticists' attempts to pair them, such a desirable result might not have been achieved. Humanity would have reached this step eventually, but it might have taken generations longer if Felix and Phyllis had been selfish with their genetic heritages. Thus, the novel argues that while it is important that humans have free choice, it is in the best interests of the species that science and technology guide those choices. Further, it argues that there is nothing essentially wrong with a system of species improvement as long as it is scientifically based.

The novel's second narrative thread deals with revolutionaries who are unhappy with the current socio-political system. Their objections, however, are not to its coercive effects but rather that it is not coercive enough. Early in the novel, Felix attends one of

the group's meetings out of curiosity. There, he learns that they plan to cleanse the world of those they deem "undesirable." Felix also reports that the rebels have:

> "…no use at all for the present genetic policy. Nor for democratic freedom. They want to set up what they call a 'scientific' state, with the 'natural' leaders running things…. When they are in control they intend to go all out for biological experimentation. They say that a culture should be an organic whole, with the parts specialized according to function. True men—supermen—sitting on top (that's themselves) and the rest of the population bred to fit requirements." (Heinlein 60)

The reference to "supermen" makes it clear that readers should draw a connection between the revolutionaries' plans and the Nazis' program for a "Master Race." By the time this novel was published in *Astounding Science-Fiction*, the U.S. was extensively involved in World War II; Heinlein, a former Navy officer, contributed to the war effort despite his ongoing health issues. It is not surprising, then, that Felix criticizes the Nazis-as-revolutionaries as both misguided and foolish. Yet the novel itself argues in favor of a version of eugenics. This suggests that the eugenics program espoused by the revolutionaries, while paying lip service to scientific principles, appeals to the human emotion of vanity. By framing the revolutionaries' plan as based on "fake" scientific principles like those of the Nazis, *Beyond This Horizon* suggests that the flaw in others' eugenics systems is that they are truly in service of (irrational) human emotions rather than guided by logical scientific principles.

Even before Felix agrees to become a double-agent in the rebel organization, the official government was aware of the rebels and their plans. While the rebel leaders believed themselves to be of superior stock, their genetic charts say otherwise: "'…they never did have what it takes. The leaders were, in most cases, genetically poor types, with conceit far exceeding their abilities'" (Heinlein 104). Although the rebels are able to make the timing of their assault a surprise, they are easily defeated by superior government forces. In short, their proposed system was neither ethically nor actually superior to the current system. This also sets up a contrast with the novel's preferred system, which does not depend on governmental coercion. In its attempts to distance itself from the Nazis' genetic programs, however, the narrative elides many of the problems inherent in any such system. It essentially argues that selective breeding is an acceptable plan for improvement of the species as long as it is overseen by the "correct" people who have the "correct" goals in mind. It ignores, however, its own assumptions about how "correct" is defined. By setting itself up in opposition to the Nazi regime, the system espoused in *Beyond This Horizon* obscures the fact that such definitions are culturally determined. By effectively divorcing science from culture, the novel ignores the effects of both on the bodies of human beings. Instead, it focuses on a positive version of scientific control of society as way to ensure peace and move humanity forward.

First published in September 1945, Lewis Padgett's *Camouflage* demonstrates the fallibility of human nature by contrasting it with the abilities of a fully integrated human-

machine.[14] Injured in an explosion, Bart Quentin is now a Transplant; his brain has been preserved and exists in a large cylindrical device that both keeps the brain alive and allows Quentin to communicate with the outside world. Visited by an old friend, Quentin repeatedly insists that he is still human and "'…not the super-machine-bodied-brain you're subconsciously thinking I am'" (Padgett 59). He further states that being a Transplant "'…doesn't affect the identity, the personal essence of Bart Quentin'" (Padgett 60). This would seem to suggest that the Self is independent of the body. A large metal cylinder is just another kind of container, seemingly comparable to the organic body for transporting and maintaining the brain/Self. The story complicates this idea, however. In an attempt to explain his life as a Transplant to his friend, Quentin is first careful to note that he is still himself. But he also notes that he is not the same person he was. He is now man plus machine, and he argues that this condition is not actually that unusual: "'Ever noticed, when you're driving or piloting, how you identify yourself with the machine? It's an extension of you. I go one step farther'" (Padgett 60). Quentin-as-Transplant, then,

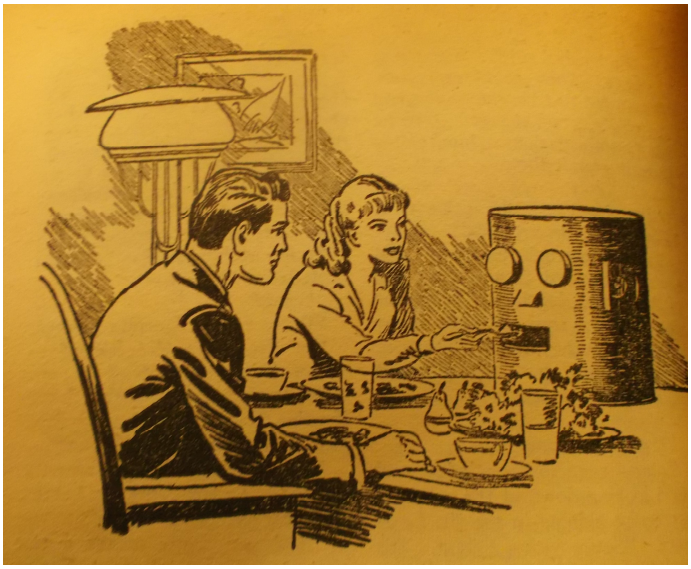

Figure 1 Illustration by Paul Orban for *Camouflage* which appeared in the Sept. 1945 issue of *Astounding Science-Fiction* (144).

[14] "Lewis Padgett" is one of the numerous pen names used by the husband and wife team of Henry Kuttner and C.L. Moore, both of whom published separately as well. For simplicity, I have chosen to use the pen name the two authors used when the story was originally published.

does not represent a radical break from the human condition. As his example highlights, humans have long seen their tools as extension of themselves, not just of their bodies but of their minds as well. As machines get more complex, this relationship becomes ever closer. Quentin is simply at a different point on the human-machine continuum, but it is a difference of degree rather than of kind. Thus, *Camouflage* argues that rather than disavowing our intimate relationships with our technologies, we should seek to embrace them.

Although Quentin's new existence does come with disadvantages when compared with his earlier biologically-embodied life, it also has distinct advantages. Quentin's friend, Talman, has fallen in with a group of criminals who are planning to hijack a spaceship piloted by Quentin. Talman's visit was not to see what had become of an old friend, but rather to gauge how much of a threat Quentin would be when they commandeer his ship. Satisfied that Quentin has gained no "special" powers upon becoming a Transplant, Talman gives the go-ahead for the hijacking. After stowing away, the criminals kill the human crew and then attempt to destroy Quentin. Fighting for his life, Quentin uses his intimate connection with the ship's systems to kill the men one by one. Some of these deaths are quite gruesome. After one of the hijackers falls down a hatchway, another, Fern, goes to investigate. Fern tells the rest of the group:

> "He went through the filter screen," he said. "It's a one-inch gauge metal mesh."
>
> "Broke through?"
>
> "No," Fern said deliberately. "He didn't break through. He *went* through."

> Four gravities and a fall of eighty feet add up to something slightly terrific. Talman shut his eyes…. (emphasis in original, Padgett 75)

The criminals are unable to locate Quentin, whose brain cylinder is hidden away somewhere in the spaceship. His integration with the ship's systems also means that Quentin can see and hear everything the men do. One might expect an invisible, omnipotent, disembodied manufactured human to be quite terrifying, and while the hijackers are increasingly frightened of Quentin, the reader is not. The narrative makes it clear that Quentin is only acting in self-defense, and he gives the hijackers several chances to surrender and be turned over to the authorities. Quentin also still sees himself as human, just embodied differently. He angrily tells the friend who betrayed him:

> "I wonder if you'd have been as ready to go through with the plan if I'd still had human form? ….You look on my mechanical body as an enemy, a barrier between you and the real Bart Quentin. Subconsciously, maybe, you hate it, and you're therefore willing to destroy it. Even though you'll be destroying me with it. I don't know—perhaps you rationalize that you'd thus be rescuing me from the thing that's erected the barrier. And you forget that I haven't changed, basically." (Padgett 75)

Thus, Quentin is not a terrifying machine, but a human being who has been betrayed by someone he thought was a friend. Readers can also sympathize with Quentin's desire to live. His shape may be unconventional but his motives are recognizable. The hijackers, meanwhile, have no qualms about murdering a thinking Self even if it is in a strange shape. Here, it is not the cyborg Quentin who is the inhuman monster but rather the

biological humans. Talman also betrayed his friend by feigning sympathy in order to gain an advantage. His fate, then, seems just rather than terrifying.

The portrayal of Quentin in *Camouflage* ultimately argues that enhanced human-machine integration is desirable. Of the spaceship's crew, only Quentin survives the hijackers' attack because he is hidden within the larger machine of the ship. This does not represent a subsuming of Quentin's Self into a larger machine; he is only camouflaged. His Self remains; it is simply cleverly hidden so as to confuse the enemy. The story further argues that while scientific and technological developments may have unforeseen consequences, only the truly "deserving" will suffer the ill effects of new technologies. Published only a month after the atomic bombings of Japan, *Camouflage* underscores the belief that technological destruction is something that happens to other(ed) peoples.[15]

Science Fiction and the Bomb

This attitude is further illustrated by the science fiction community's reaction to the atomic bombings of Hiroshima and Nagasaki. Given the physical, mental, and emotional toll the war had taken, it is perhaps not surprising that the majority of science fiction fans' reactions to these events were positive. Wartime propaganda on both sides of the conflict also meant many people in the U.S. believed that defeating Japan would have otherwise required an exhausting and bloody campaign.[16] In this formulation, the atomic

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[15] Because of the time required to write and publish a story, it is extremely unlikely that *Camouflage* was written in response to the atomic bombings of Japan. But its portrayal of science and technology can be read as a reflection of contemporary attitudes during the final months of the war.

[16] The belief that defeating Japan would require protracted ground campaigns on the main Japanese islands was fairly widespread at the end of the war. This predication, however, has since been challenged by military historians who argue that the Japanese empire was on the verge of collapse and would have surrendered long before such tactics became necessary.

bomb actually saved lives, both American and Japanese. In addition to relief that the war in the Pacific had been brought to a swift end, science fiction fans also saw the atomic bomb as proof of the genre's social value. As one fan noted, "The official revelation that Atomic Energy is at last a practical reality vividly demonstrates the value of science-fiction beyond mere 'escape' reading" (J.M.B. Churchill 170). Many of the stories published in *Astounding Science-Fiction* and elsewhere had featured nuclear energy as an integral part of fictional future societies. At least in the eyes of the science fiction community, the enhanced social status of the genre (and of themselves) was because science fiction had predicted the development of nuclear power. They saw the atomic bomb, not as a threatening piece of military technology, but as proof of the genre's accuracy.

Campbell states in his editorial response to the news of the bombings that many fans had written to him describing how they "…were suddenly recognized by their neighbors as not quite such wild-eyed dreamers as they had been thought, and in many soul-satisfying cases became the neighborhood experts" ("Atomic Age" 5). Furthermore, fans' letters make it clear they felt that they were now living in the future they had so often dreamed of. Even in the face of the immense destruction and loss of life caused by the atomic bombings of Japan, the science fiction community's faith in the essential goodness of science and technology remained largely unshaken. As one fan stated about the atomic bomb, "I for one cannot help having an exhilarating feeling that it is a tremendous step for the betterment of mankind" (J.M.B. Churchill 170). It is important to note that the science fiction community was not unaware of the problems inherent in the

use of nuclear power, but they believed that the positive social effects would outweigh the negative ones.

In his editorial, "Atomic Age," Campbell argued that the atomic bomb would usher in a new era of enlightenment and tolerance:

> The atomic weapon is, to nations, what the revolver was to the men of the old West—the Equalizer….
>
> And, just as the revolver produced an era of good manners or sudden death, the atomic bomb must, inevitably, force upon us an era of international good manners and tolerance—or vast and sudden death. (98)

This sentiment was echoed by fans: "when you see a lone plane a mile or so away drop a bomb and realize there is nothing you can do, you may realize the futility of warfare" (King 118-119). Thus, even the potential (and actual) destructive power of atomic weapons was seen as leading ultimately to a better future for everyone.

By the war's end, the science fiction community's steadfast optimism about science and technology had been tempered somewhat by the realities of war. This change, however, was not simply an increased awareness of the destructive potential of science and technology. As the portrayals of science and technology in *Astounding Science-Fiction* during this period show, the science fiction community was also beginning to rethink the human-machine relationship. By 1945, the technology of the future was depicted in more intimate partnerships with human beings than it had in 1938. Orestes had been a separate entity whose lack of self-awareness was played for laughs. Quentin, however, was a recognizable Self whose very life depended on his integration

with a technological apparatus. The manufactured human was no longer a completely alien being but rather existed alongside and within the human Self. This relationship would continue to evolve during the postwar period.

CHAPTER 2: THINKING BETTER IN THE POSTWAR U.S.

In *The Unfinished Journey: America Since World War II*, William H. Chafe notes that "Rarely has a society experienced such rapid or dramatic change as that which occurred in America after 1945" (111). The G.I. Bill helped fund advanced education for returning veterans, and the federal government helped make home ownership a reality for millions of Americans. Real wages increased in the years following the war, and pent-up demand due to war-time restrictions meant Americans were in the mood to buy a wide range of consumer goods. Alongside these widespread social changes, the science fiction community's understanding of the relationship between humans and machines continued to evolve in the years following the war. The community, especially the portion with close ties to *Astounding Science-Fiction* and its editor, Joseph W. Campbell, Jr., increasingly embraced fuller human-machine integration during this period. This attitude can already be detected in stories published late in the war, such as *Camouflage*, and would become more fully developed over the next several years. The science fiction community was especially interested in an idea which I am calling "thinking better." Taking a variety of forms in the second half of the 1940s, "thinking better" represents an attempt to understand the workings of the human mind in order to develop a "correct" process of thinking based on scientific logic. This can be read as an attempt by its proponents to systematize the irrationality of human nature to be more like that of logical machines, effectively making humans mental cyborgs.

This interest in "thinking better" was linked to the science fiction community's conversations about the effects of nuclear science on the world. Given the community's

interest in the topic, it is not surprising that nuclear science continued to be discussed in the pages of *Astounding Science-Fiction* well into the latter half of the decade. Several of Campbell's postwar editorials discussed nuclear science and its potential postwar applications including fighting cancer with neutron beams ("Secrecy and Death," June 1946), powering unmanned reconnaissance drones ("Atomic Engines," Nov. 1946), the conversion of the Oak Ridge reactor for research ("Reconversion at Oak Ridge," Feb. 1947), neutrinos ("Nothing with a Name," Dec. 1947), the building of a radiation chemistry research facility in New York ("Brookhaven Laboratories," Dec. 1948), and British atomic piles ("Gleep and Bepo," Jan. 1949). These editorials, which often expressed optimism about the future of nuclear energy, were well-received by fans. One fan, for example, praised Campbell's November 1945 editorial on the atomic bomb as "…one of the sanest, clearest things that has been said about atomic power to date" (Anger 94). He further stated that "The atomic weapon could be the 'Doomsday Bomb' but it also could be greatest asset to the world that Earth has ever known" (Anger 95). As I discussed in Chapter 1, many science fiction fans saw the atomic bomb as proof of the social value of science fiction. While much of the world was still attempting to determine the potential consequences of nuclear weapons, the science fiction community felt that the genre's forward-looking nature had already positioned it to explore the possibilities of nuclear science. Their belief that this future would be a good one underscores how their earlier techno-optimism, rather than being challenged by the events of World War II, had instead been strengthened.

Readers of *Astounding Science-Fiction* were not alone in their optimism about the future of nuclear science. In *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age*, historian Paul Boyer states that "The earliest post-Hiroshima polls reveal a considerable will to think positively about the bomb" (22). A Gallup poll conducted in September 1945 found that sixty-nine percent of those surveyed "…considered it 'a good thing' the atomic bomb had been developed" with another fourteen percent expressing no opinion on the issue (Boyer 22). While Campbell and the *Astounding Science-Fiction* community generally focused on the positive potentials of (nuclear) science, they did occasionally discuss the dangers and challenges posed by new developments in science and technology.

Campbell's February 1946 editorial, "Postwar Plans…," addresses these issues by outlining two potential futures. The first, which Campbell labels "Plan for Survival," focuses on how to survive a nuclear apocalypse and it is clear that Campbell believes that such a scenario is likely to occur sooner rather than later: "The present trend of international hatreds, plotted against the probable rate of atomic advance in other countries, suggests a period of about three to five years before atomic war breaks out" ("Postwar" 5-6). The second plan, "Plan for Expansion," is much more optimistic and focuses on potential discoveries in nuclear science that will revolutionize power generation. Campbell urges his readers to "read the Smyth report…. If you haven't, there's no adequate excuse for a science-ficitoneer skipping the most important document in all of human history—get it" ("Postwar" 5).

A portion of the Smyth report[17] was published in the December 1945 issue of *Astounding Science-Fiction* and Campbell repeatedly encouraged readers to learn all they could about nuclear science.[18] Although some of the Smyth report dealt directly with the atomic bomb, the majority of it focused on the scientific development of human control of nuclear energy. By presenting it as an alternative to the future outlined in "Plan for Survival," Campbell suggests that the more people who understand the scientific and technical aspects of (nuclear) science, the more likely the world will be able to avoid a (nuclear) apocalypse.

Thinking Better

In addition to stressing the importance of learning about nuclear science, Campbell also argued that it was necessary for people to learn to "think better" if mankind was to achieve a better, safer future. Campbell begins his April 1946 editorial, "Progress To Be Made," by noting that "We can't tell how much the possession of nuclear energy as a research tool for studying nuclear energy will yield—but we can guess safely that we'll learn a lot, and fast" (6). Especially when read alongside Campbell's other editorials on nuclear science, he almost certainly wants his readers to view learning about nuclear science as a positive move forward for society. Campbell does briefly discuss the potential negative consequences of increased nuclear capabilities

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[17] "The Smyth Report" was the popular name for *Atomic Energy for Military Purposes: The Official Report on the Development of the Atomic Bomb Under the Auspices of the United States Government, 1940-1945.* Prepared by Dr. Henry DeWolf Smyth on behalf of the U.S. government, it was written to educate the general public about nuclear science and was released to coincide with the news of the atomic bombings of Japan.

[18] Chapter 12 of the Smyth report was published in "Atomic Power Plant: The Making of the Bomb" in the December 1945 issue of *Astounding Science-Fiction*.

in this editorial, but they are framed as unfortunate, and potentially avoidable, byproducts of the development of new (scientific) knowledge. He further argues that as scientists learn more about controlling atomic energy, they will be able to reduce the size of atomic reactors. Once atomic energy is more portable, it will increasingly find its way into the hands of everyday (irrational) human beings. Eventually, according to Campbell, "some sincere, noble soul, a martyr to his own desire to save the world as quickly as possible in the way *he* knows is best, is going to commit suicide with some such gadget" and take a city with him (emphasis in original, "Progress" 6). The use of "martyr" is likely deliberate here. Martyrs die for their faith, a rather illogical thing to do as faith, by its very nature, is not something that can be subjected to the scientific method. Thus, the problem is not with nuclear science but rather with delusional human beings who will let beliefs override their ability to think logically.

Campbell's solution to this issue is to turn to another science he feels is equipped to handle human nature. He argues that "It's up to psychology to develop means of finding such unstable people and adjusting them to fit the world as it is" (Campbell "Progress" 6). Campbell remains vague on what exactly constitutes "adjusting" someone, but his usage of the term makes it almost synonymous with making someone be "sane" and "logical." Left unexamined are the slippery meanings of those terms as well as their socially-specific connotations. Campbell briefly notes that such techniques could potentially be "…used to 'correct' the thoughts of people who don't need it," but he devotes only a brief paragraph to the idea and does not seem terribly concerned by it

("Progress" 6). For Campbell, at least, scientifically-guided thinking is the best option for the human race.

Fans initially seemed to reject Campbell's suggestion in "Progress To Be Made." S.G. Thomas, for example, writes in the July 1946 Brass Tacks that using psychology to "adjust" people might inadvertently suppress genius and innovation. After all, he argues, many important scientific discoveries occurred when someone broke with established methods and examined evidence in a new way. Thomas closes his letter by noting that "If psychology could really handle those ideas, it might be able to do something…. [But] Wouldn't you or anyone else who did anything about it, as you point out, be one of the worldsavers?" (173). Thus, the issue is not actually with the psychological adjustment of people but rather with the idea that it, like nuclear science, could be misused by (illogical) human beings. The plan's flaw is not with science, but rather with its practitioners. Thomas remains unconvinced that Campbell's proposal will have the intended effect, but he does not question Campbell's basic assertion that the best solution to the problem of irrational human beings is a scientific one.

More letters appeared in the August 1946 issue of *Astounding Science-Fiction* responding to "Progress To Be Made." C. Burton Stevenson argues that psychology can be just as dangerous as nuclear science because it can be used to by those who have mastered it to manipulate and oppress those who have not. As an alternative, Stevenson proposes that "…the safest bet is to develop the principles of critical judgment in the individual" (172). To achieve this, he argues that "…education throughout the world must take a new tack, with a shift in emphasis from memorizing and indoctrination to the

development of tolerant and reasonable but skeptical attitudes" (Stevenson 172). Left unexamined by Stevenson are the many ways in which teaching people *how* to think can determine *what* they think and that education is a way of fostering socially desirable behaviors while suppressing those deemed undesirable. Again, the objection is not to changing how people think, but rather to the methods employed for achieving that end.

Writing in the same issue of *Astounding Science-Fiction*, L. Jerome Stanton argues in his letter that "Wars aren't started by atoms, and all the bombs in the world will never hurt a flea *until some human agency sets them off.* The real problem lies in the 'science' of human motivation and conduct, rather than the nuclear lab" (emphasis in original, 175). Much like Campbell had argued in his editorial, (illogical) human actions are the true problem for Stanton and the other letter writers. In their own way, each argues that the best way to prevent another atomic war due to human irrationally is to educate as many people as possible in logical thinking. Many of the letters repeatedly refer to science and the scientific method as viable paths to a peaceful future. These proposals rely on the notion that there is a "best" method for thinking and it is based on logical, scientific principles rather than imprecise intuition and illogical human nature. The fans' objection seems to have been to the specific method Campbell proposed. They accepted the larger argument that science—be it educational, rhetorical, or ideological—not only could, but should, be employed to prevent the kind of irrational beliefs and actions that caused two world wars.

Perhaps inspired by Campbell's argument in "Progress to Be Made," Bernard I. Kahn's *Command* illustrates the dangers of irrational humans, especially when mixed

with advanced technologies. Published nine months after Campbell's editorial, Kahn's novella explores the danger a "psychotic" crewmember of a spaceship can pose to others. During his first command mission, Lieutenant Nord Corbett must deal with Bickford, the spaceship's air officer, who did not earn the position based on his own merits and abilities. Instead, Bickford is a political appointee whose well-connected family members got him the position. While the novella could be read as an argument against political favoritism, the narrative explicitly portrays Bickford as psychotic. At dinner the first night the ship is underway, the officers discuss the definition of a psychopath, which the ship's surgeon defines as:

> "…a person with a mental defect which prevents him from learning by experience. Such personalities are usually brilliant, able to learn readily, but when it comes to living with others they are social failures. They are like children, mere emotional infants. Their conduct is ruled solely by impulse. They will think over an idea for a second and then act without considering the consequences to themselves or others." (Kahn 6)

This statement occurs in the first six pages of the novella and frames Bickford's later actions. Bickford does not get along with the other officers and he is often sloppy at his job. Angry that the other officers do not respect him, Bickford decides to destroy the ship's air supply. Done on drunken impulse, Bickford's actions put himself in danger of suffocation along with the rest of the crew. The impression that these behaviors are the actions of a psychopath is confirmed by the revelation at the close of the novella that

Bickford is, in fact, a diagnosed psychopath whose family shipped him out in hopes he would turn over a new leaf.

Command dramatizes many of the concerns Campbell raised in "Progress To Be Made" about mentally ill humans using access to advanced technologies to endanger others. As a political appointee, Bickford did not undergo the psychological evaluation normally required of members of a spaceship crew. The rest of the ship's crew, however, had been evaluated and their mental stability enables them to handle the results of Bickford's psychosis. Lieutenant Nord Corbett, as officer in charge of the ship, does not give into panic or even anger in the face of Bickford's irrational actions. He calmly arrests Bickford and then calmly develops a solution to the tainted air supply. His ability to think sanely and logically without being affected by emotion, in short to "think better," is what enables Lieutenant Corbett to save the crew. His foil, Bickford, represents the dangers of impulsive, emotion-fueled human nature. While *Command* points to the threat such people represent, it also suggests through the character of Lieutenant Corbett that even a few people who are able to "think better" can make a difference in preventing psychosis from affecting innocent bystanders.

Command focuses on the effects of one psychotic on a self-contained group of "normal" humans; John D. MacDonald's *Trojan Horse Laugh* investigates the effects of mass psychosis on society. The novella begins by introducing Happiness, Inc., which adjusts peoples' endocrine levels so that they are more emotionally balanced, generally cheerful and, most importantly, their moods are in sync with those of their family and

friends. Joe Morgan, a newspaper reporter, interviews the local representative of Happiness, Inc. who explains that once everyone in a family has been adjusted, they:

> "…can plan ahead. They know that during each thirty-day period they will feel increasingly better for twenty days. Then there will be five days of warm joy, and a five day decline, not too abrupt, to the starting point. They will feel good together, mildly depressed at the same time. They can plan holidays accordingly and they can always judge the mood of the other members of the family by their own mood." (MacDonald *Trojan* 61)

This syncing of moods is not just done to individual families; everyone in the city is adjusted to be on the same thirty day cycle.[19] The process is sold to businesses as a way to boost productivity. Much like Ford revolutionized manufacturing by reducing the assembly process to a series of steps, repeated endlessly by workers on the line, "mood adjustment" does the same to white-collar jobs. Once workers are adjusted, their moods can be predicted and thus production schedules will be more accurate. Individuals, and their individual emotions, will no longer throw the system into chaos. In short, "adjustment" transforms human workers into reliable automatic production devices.

The process is incredibly popular, but Joe Morgan refuses to be adjusted, despite social pressure to do so. He argues that "'I don't want any needles stuck in me to make me joyous. I don't want my emotional cycle analyzed and adjusted to match everybody else's cycle. I want to be my own man, all the way'" (MacDonald *Trojan* 59). Joe's

[19] This fictional portrayal of adjusting the functioning of interconnected systems within human beings was likely influenced by the development of cybernetics. The science fiction community's engagement with cybernetics will be discussed in more detail later in this chapter.

resistance can be read as an attempt to push back against the standardization of the American worker in the postwar era. In contrast to processes that made people more like machines on a white-collar Fordist assembly line in pursuit of (corporate) profits, Joe's resistance speaks to the American ideal of rugged individualism. But Joe is one of the few hold-outs, and increasing numbers of people willingly visit Happiness, Inc. to be adjusted.

At first, *Trojan Horse Laugh* seems to challenge the argument that society will be improved by changing how people's minds function in order to ensure that everyone "thinks better." As the main character, Joe's rejection of the "efficiency" of Happiness, Inc. strongly influences the reader's perception of the program. The problems with adjustment also become apparent as the novella progresses. Once most of the city's population has been adjusted, their cyclical moods become self-reinforcing. The "high" of each month's cycle becomes increasingly frenetic until it turns into a bacchanalian carnival that sweeps everyone up into a whirlwind of pleasure and destruction. Eventually, it is revealed that Happiness, Inc. was the first wave of an invasion by a hostile country. After the Americans have destroyed their own cities, the invaders swoop in to conquer the survivors. Although the invading country is never named, the narrative strongly implies that it is the U.S.S.R., and to some extent this novella can be read as an expression of Cold War fears. But instead of nuclear weapons, the invaders use Americans' own emotions against them. That the enemy's plan is so successful suggests that human emotions are a weakness in otherwise strong defenses. It also implies that humans are inherently irrational. Even the non-adjusted are affected by the monthly

"high." They are not merely bystanders but rather become active participants: "The impossible laughter was contagious, even as it frightened. Joe felt laughter stretching his lips, painting itself across his mouth" (MacDonald *Trojan* 75). People loot, maim, and murder while they and their victims laugh hysterically. These scenes of careless self-destruction suggest that human emotions can be so powerful they can override logic and ethics. It is worth nothing that while the medical science of Happiness, Inc. enabled this national disaster, its true cause was already embedded in human nature. Human emotions and moods already exist; enemy science simply built upon them to weaken an otherwise formidable opponent.

MacDonald's novella highlights the danger of "adjusting" people to fit a pre-determined ideal. Joe's decision to remain an individual rather than become a cog in a well-functioning social machine is what ultimately enables him to escape the chaos in the cities. But in its portrayal of the destruction caused by human emotions, the novella also argues that these elements of human nature should be controlled. Linked with Joe's individualism, this suggests that the best method of achieving a peaceful society is one in which people individually choose to adopt a program of logical thinking. Doing so will enable them to control their own emotions and to resist snake oil salesmen.

These cautionary tales of the dangers of human irrationally appeared alongside others featuring positive portrayals of manufactured humans. Such narratives included Chan Davis's "Letter to Ellen," which was published in the June 1947 issue of *Astounding Science-Fiction*. The text of the short story is framed as letter from Dirk to his girlfriend, Ellen, in which he tells her about the events preceding the death of his

friend, Roy. Long-time friends, Roy and Dirk worked as biochemists doing cutting-edge research in what would now be called bioengineering. Only seeing a small part of the overall process, the two men grow curious about the ultimate results of the lab's work. Roy soon discovers that the lab is not just making simple vegetable proteins; it is also synthesizing higher order animals, including human beings. Deeply troubled by this discovery, Roy insists on referring to the humans created in the lab as "robots." He argues that there is a difference between manufactured humans who "'…come out of somebody's reagent bottles'" and "'natural'" human beings, even mutated ones, who were born biologically (Davis 218). The day after Roy's twenty-sixth birthday he tells Dirk he has learned that "'I [Roy] wasn't born, I'm one of the robots, they put me together out of those goddamned chemicals in those goddamned white-labeled regent bottles in that goddamned laboratory'" (Davis 219). Dirk attempts to calm Roy down, but Roy commits suicide soon after leaving his friend's apartment. Dirk explains that "Roy was one of the experiments that failed. He was no more unstable mentally than a great many normally born men; still, a failure, though nobody knew it until he was twenty-six years old" (Davis 220-221). Dirk's real reason for writing, however, is not simply to tell Ellen about his friend's death. Instead, his story about Roy is a prelude to Dirk's own confession. He, too, was grown in the lab.

This, however, is not a suicide note. Unlike Roy, Dirk never viewed the humans created in the lab as fundamentally different from "natural" humans. While he is surprised to learn about his manufactured origins, Dirk is not upset by the knowledge and seems willing to continue with his life. While Roy was still alive, Dirk had argued that

there was no fundamental difference between "natural" humans and those created from "somebody's reagent bottles." Although not explicitly stated in the narrative, this line of reasoning suggests that humans are always already inextricably linked with the products of science and technology. Dirk's willingness to accept this fact enables him to more easily accept the knowledge that he is a manufactured human. That Dirk does not go crazy like Roy did suggests that this is the correct line of reasoning. Denial of the link between humans and machines, in contrast, leads to existential breakdown. Much like Quentin in *Camouflage* (discussed in Chapter 1), the beings created in the lab are simply at a different point on the human-machine continuum. As a completely manufactured being, Dirk is further along this continuum than was Quentin, who was a biological human brain in a machine container. This progression suggests an increased interest in ever greater human-machine integration on the part of *Astounding Science-Fiction*.

"Letter to Ellen" also addresses how manufactured humans should be integrated into preexisting human society. Dirk's decision to write the letter is motivated by his conviction that Ellen should know that he was not born in the usual way before he asks her to marry him. This union between a manufactured human and a biological human is not portrayed as a reason for concern, however. It is clear that the narrative wants readers to hope that Ellen does not reject Dirk because of his unconventional origin and instead accepts the marriage proposal that ends the letter.[20] As the narrator of the story, Dirk is not portrayed as the ideal companion to the male reader, but rather the male reader himself. By encouraging readers to see themselves in Dirk, "Letter to Ellen" argues that

[20] A similar situation, with some key differences, can be found in "Helen O'Loy" by Lester del Rey, which will be discussed in Chapter 3.

they, too, should be willing to accept intimate relationships with the products of science and technology.

This identification with Dirk is further underscored by the editorial apparatus surrounding the short story. The teaser text that appears before the narrative proclaims: "The gentleman had a problem. Most men have trouble framing the question to The Girl; he had a harder job—and she would have a still harder decision to make—" (*Astounding* June 1947 42). This is paired with a drawing of a young man, presumably Dirk, laboring over his letter while surrounded by crumpled drafts (Cartier "Letter" 11). This illustration shows Dirk in a situation many readers would be familiar with: a young man's struggle to find the right words to tell his sweetheart how he feels. The revelation of Dirk's manufactured nature also does not occur until almost the end of the narrative, by which point the reader has already been encouraged to think of Dirk as a "normal" young man. He has a best friend, he went to college, and he has a good, stable job. This portrayal of Dirk as "normal" suggests an increased willingness, at least on the part of the author and the magazine's editorial staff, to see the human Self as fundamentally linked to scientific and technological apparatuses.

This link is further explore in Poul Anderson's "Quixote and the Windmill," which addresses concerns about human workers being replaced by machines. The story begins by juxtaposing a future utopia with the unsettling presence of a robotic being. With advanced machines to take care of their needs, humans now live in a pastoral paradise free of hunger, fear and want. Through this paradise, wanders a manufactured human:

> They [the humans] saw the robot go by, and often a silence fell as his tremendous shadow slipped past….oh, they trusted the cybernetics men, they didn't look for a devouring monster, but they wondered. They felt man's old unsureness of the alien and unknown, deep in in their minds they wondered what the robot was about and what his new and invincible race might mean to Earth's dwellers. (Anderson 33)

The narrative further describes the robot as "the first independent, volitional, non-specialized machine" but also notes that it is potentially a "…man-transcending creature who could serve or destroy with equal contemptuous ease" (Anderson 32; 33). Once the nature of this unsettling figure has been established, the narrative turns to two men attempting to drown their sorrows in alcohol. The first, Pete Borklin, is a former blue-collar laborer whose abilities were made obsolete by automated machines. The second, Roger Brady, represents the white-collar workforce. Too bright to be a technician who merely monitors machines, he is also not quite bright enough to do the advanced research still needed in a world where machines do most routine scientific work. The two men's exchange of troubles highlights the often-overlooked fate of workers in a machine-powered future. Even in a utopian society that is able to meet the basic needs of its population, there remains the problem of finding new roles for those whose abilities and training were made unnecessary by the machines.

The two men eventually conclude that "'Man is simply flesh and blood. Humans are only human. They're not efficient enough for our shiny new world. Why not scrap the whole human race? How long till we have nothing but men of metal in a meaningless

metal antheap [sic]?'" (Anderson 39). This statement highlights the twin fears often represented by manufactured humans. The first is that they will make humans obsolete. There might not be a bloody machine uprising, but without a need for humans to exist, they will eventually die out and be replaced by mechanical creatures. The second fear is that without biological humans to give life meaning, it will cease to have one. Everything will be the cold, calculating logic of machines. Catching sight of the special robot, the two men decide to confront it. Brady angrily tells it "'The machines are taking over all Earth with their smug efficiency, making man a parasite—and now you come, the ultimate machine, you're the one who's going to replace man himself'" (Anderson 40). The robot's response reveals that "Quixote and the Windmill" does not describe the gradual obsolescence of humans but rather explores why humans will remain necessary and relevant even in a world with advanced machines. The robot tells the two men that "'…machines are no more than his [man's] tools….it will always be *man* who sets man's goals and dreams his dreams. The all-purpose machine is and forever will be—man himself'" (emphasis in original, Anderson 41). The robot, the seeming replacement for mankind, is actually the useless parasite. In fact, the robot must confront the same problems as Brady and Borklin do. He also lacks a purpose and a place in the world. But unlike them, the robot cannot change and grow. He is what he is, forever.

Even the story's title points to the senselessness of Brady and Borklin's complaints. Don Quixote began his mad quest when he realized that his role as a minor landowner and scholar had become obsolete. Unable to deal with a changing world, Quixote retreated into madness and created a world in which his actions still mattered.

Attacking the robot will not solve Brady and Borklin's problems any more than attacking windmills did for Quixote. Furthermore, attacking the symbol of automated labor (the robot/windmill) ignores the benefits such machines bring to mankind. People no longer need to devote as much time and energy to providing themselves with the basics for life. Instead, they can focus on more rewarding pursuits. Much like Quixote was mad to see the windmills as threatening figures because they made the feudal system obsolete, so too are biological humans who see manufactured humans as threatening because they make a more modern system obsolete. By embracing the possibilities offered by advanced machines and integrating them as fully as possible into society, the humans in the world of "Quixote and the Windmill" were able to move closer to utopia. Perhaps we should do the same.

Compared with narratives such as *Command* and *Trojan Horse Laugh*, "Quixote and the Windmill" suggests that people's fears about the effects of machines on society are misplaced. Humans can, and have, caused massive death and destruction. The machines of "Quixote and the Windmill," in contrast, are benevolent caretakers. Running throughout narratives such as these is an implied argument that current methods of (emotional) human thinking are flawed and humans must learn to "think better" in the postwar world. By portraying the human side of the human-machine relationship as dangerous, "thinking better" represents a desire that people think more like logical machines. By "thinking better," humans can integrate more fully with machines and, by doing so, avoid the problems caused by human irrationality. Unlike the Turing Test, which would argue that machines will become more like humans, this line of reasoning

suggests that humans should become more like machines. This result, rather than being terrifying, is repeatedly portrayed as desirable in *Astounding Science-Fiction*. Science and technology will solve humanity's flaws by eliminating, or at least minimizing, the fallible elements of human nature.

Two notable and popular series explored this idea in the years following the war. The first, A.E. van Vogt's *Ā* (or *Null-A*) series, argues that humans can learn to "think better" by using General Semantics to systemize language and thought. The second, Jack Williamson's *Humanoids* series, argues that the power of the human mind can best be realized through intimate partnerships with manufactured humans. Although both series were popular, fans' letters expressed mixed reactions to the ideas advanced in these narratives. But much like fans' discussions about the best social/economic/political system for a nuclear-capable world, their objections usually focused on the flaws of the particular system being discussed, suggesting a tacit acceptance of the larger project of "thinking better."

van Vogt's *Ā* series draws heavily on Polish-born scholar Alfred Korzybski's theory of General Semantics. In *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics*, Korzybski argues that humans' understanding of the world is fundamentally shaped by the structure of the human nervous system and the interrelated structure of human languages, both of which mediate our experiences. Awareness of the disconnect between the physical world and human perceptions of it can help individuals avoid being misled by language. Korzybski repeatedly refers to human language as the key to understanding "…the fundamental mechanism…" of the operation

of the human mind (15). General Semantics will enable people to better control this "mechanism," and thereby improve the functioning of their minds. This system, especially as interpreted by the writers and readers of *Astounding Science-Fiction*, can be read not just as a science of the brain but also as a kind of programming of human nature. That is, General Semantics was portrayed as a scientific system that treated language as a code; implementing the "best" version of this code would cause the brain to function "better," i.e. more logically. The science fiction community's interest in adopting this system highlights the widespread belief that the best way to improve human nature was to make humans more like advanced machines.

The influence of Korzybski's system can be clearly seen in van Vogt's *Ā* series. Serialized in the August through October 1945 issues of *Astounding Science-Fiction*, van Vogt's *The World of Ā* follows Gilbert Gosseyn as he uncovers a plot by a galactic empire to conquer Earth and its colony on Venus. The Earth of Gosseyn's future is run by a benevolent A.I., the Games Machine, which espouses the Ā philosophy. Once a year, anyone who is interested can take a test administered by the Games Machine to determine if he or she has mastered Ā thinking, a mastery which requires "…thousands of hours of personal training" to achieve (van Vogt *World* 14). Early in the novel, Gosseyn explains to his companion that Ā thinking is more than simply a philosophical outlook; it is an entire mind-body system:

> "Both the cortex and the thalamus have wonderful potentialities. Both should be trained to the highest degree, but particularly they should be organized so that they will work in co-ordination. Wherever such co-ordination, or integration, does

> not occur, you have a tangled personality—over-emotionalism and, in fact, all variations of neuroticism. On the other hand, where cortical-thalamic integration has been established, the nervous system can withstand almost any shock." (van Vogt *World* 18)

Thus, learning to "think better" in the style of Ā actually enables the brain to work more efficiently (and more like a machine). By administering the test, the Games Machine guides humanity's improvement by teaching irrational humans to be more rational and machine-like. Those who demonstrate their mastery of non-emotional, logical thinking to the Games Machine are sent to Venus, a utopian world populated only by Ā thinkers. The people of Venus have no government or police force because they do not need them. They are all "rational" thinkers, so they are not prone to the greed and violence that so often distorts human interactions. Their adoption of machine-like thinking means that individuals on Venus do not need oversight, governmental or otherwise, to act rationally, logically and, by extension, ethically.

When invaders arrive in the Solar System, the people of Earth are manipulated into destroying the Games Machine. With their society now in chaos, they are easily conquered. The Venusians, however, are able to reclaim their planet in a matter of days despite being out-numbered and out-gunned. The narrative attributes their success to the Venusians' Ā thinking: "As one man, Venusians had realized the situation, and without agreement, with no preplanning or warning, had done what was necessary. It was a victory for sanity that would surely leave its impress on every thoughtful man in the universe" (van Vogt *World* 157). Once they have regained control of their own world, the

Venusians drive the invaders from the system. Thus, the "sanity" of Ā thinking saves not just a world where everyone is a practitioner, but also one that is still deeply flawed. This suggests that even a relatively small group of people who have learned to "think better" can do much to make the world (and the Solar System) a safer place for everyone.

van Vogt's sequel, *The Players of Ā*, appeared in *Astounding Science-Fiction* three years later.[21] It begins shortly after the events of *The World of Ā* and again follows Gilbert Gosseyn for much of the narrative. The scope of events is expanded as Gosseyn's consciousness is transferred into the bodies of other individuals throughout the galaxy. Chief among these temporary bodies is that of Prince Ashargin, whose homeworld was conquered by the same galactic empire that threatened our solar system in *The World of Ā*. Upon arriving in Ashargin's body, Gosseyn quickly realizes that the prince possesses

> …an unintegrated, insecure mind, dominated by fears and uncontrollable emotions that were imprinted on the nervous system and muscles of the body. The deadly part of that domination was that the living flesh of Ashargin would react to all that internal imbalance on the unconscious level. Even Gilbert Gosseyn, knowing what was wrong, would have scarcely any influence over those violent physical compulsions—until he could train the brain of Ashargin to the cortical-thalamic sanity of Null-A. (van Vogt *Players* 24)

Occurring early in the narrative, this passage stresses the link between the mental training of Ā and its effects on the body. Gosseyn's Ā training means that he does not just behave more sanely than those without the training, he actually is saner. His mind works better

[21] *The Players of Ā* was serialized in the October 1948 through January 1949 issues of *Astounding Science-Fiction*.

because he has learned to "think better." When he again finds himself in Ashargin's body, Gosseyn is surprised to discover that, in the interval, Ashargin had begun to think less emotionally and respond more logically to events: "It was one more evidence that even so unintegrated a personality as Ashargin responded quickly, and that only a few hours of control by a Null-A trained mind could cause definite improvement" (van Vogt *Players* 91). Simply by being introduced to a means of "thinking better," Ashargin has been able to make positive changes in his own life. He no longer faints when under stress but instead is able to remain calm even in the face of uncertainty. This underscores the power of "thinking better" to improve the minds—and the lives—of individuals.

The 1945-46 Fantasy Review, which was produced and distributed by fans, notes that *The World of Ā* drew "both biting criticism and eulogies of praise" from fans (32). An editorial note in the November 1945 issue of *The Voice of the Imagi-Nation* (or, *VoM*) refers to the novel as "…the controversial, 'World of Null-A'" (6).[22] Fans' critiques of the novel focused primarily on van Vogt's writing style rather than on the validity of General Semantics. The novel teems with secondary and tertiary plots, a point noted by Sam Moskowitz in his scathing review of *The World of Ā* published in the November 5, 1945 issue of *The Fanews*. The problem with the narrative, according to Moskowitz, is that "The story is padded to an extraordinary, irrelevant degree with incidents that have no relation to the development of the tale." Despite such criticisms, the novel was quite popular. Each installment of *The World of Ā* received first place in the Analytical

[22] Editorial notes were underlined in *VoM*.

Laboratory, and *The Players of Ā* also proved popular with *Astounding Science-Fiction*'s readers (Feb. 1946 116; March 1946 155; April 1946 132).[23]

Fans' letters reveal that they were intensely interested in van Vogt's exploration of General Semantics and its potential socio-political applications. Donald Warren in the November 1945 issue of *VoM*, states that while "…I [Warren] still don't understand the plot of the story; it was involved enough, and there seem to be loose ends by the handful. But that doesn't matter; I benefitted from the story in the way in which van Vogt desires--I was moved to read SAS [*Science and Sanity*]. That was more than just compensation. A field new [sic] and of extreme interest to me," and he encourages fellow science fiction fans to read Korzybski's *Science and Sanity* (7). Jack Speer argues in his letter to *VoM* that "Widespread understanding of the principles of general semantics might work a profound change in the characteristics of society" (10). Appearing in the December 1946 issue of *Astounding Science-Fiction*, W.P. Key states in his letter that

> Out of the 'World of Ā' I have taken more sound psychology than from any one of the books on my shelves and in a much more readable form….
>
> Van Vogt presented an educational program which is man's only means of saving himself…. It is a program we could start developing now. (175)

This final statement is especially interesting as it suggests that what intrigued science fiction fans about Ā was its seeming ability to affect widespread social change. This change, however, is not due to creating a more equitable society or developing a new socio-political system, but rather is due to people learning to "think better." More

[23] Parts 1 and 2 of *The Players of Ā* received second place ("Analytical" Jan. 1949 55; Feb. 1949 146). Parts 3 and 4 received first place ("Analytical" March 1949 101; April 1949 162).

specifically, the system portrayed by van Vogt focused on fostering "logical" thinking and enabling practitioners to resist being misled by their emotions. The science fiction community's interest in this process points to its on-going association of "thinking better" with thinking more like logical machines.

Interest in General Semantics remained strong enough that *The Fanscient*'s Spring 1948 issue included an article by Paul H. Klingbiel explaining Korzybski's theory. A well-respected fanzine, *The Fanscient* was edited by Donald B. Day and was initially sponsored by the Portland Science-Fantasy Society. It was noted for its high production values and writing quality and was eventually nominated for a Retro Hugo award ("Long List"). The zine's publication of an article on General Semantics points to the science fiction community's continuing interest in the subject.[24] After encouraging people to read Korzybski's *Science and Sanity*, Klingbiel gives an overview of the topic. He explains that while humans are no longer unthinking animals, the human nervous system still has strong ties to our animalistic past. This means that we often unthinkingly react to stimulus like an animal would rather than as thinking, reasoning human beings. This "'…leads to the general state of un-sanity reflected in our private and public lives, institutions and systems'" (Korzybski qtd. in Klingbiel 24). According to Klingbiel, General Semantics can help address this issue by making practitioners aware of the socially determined meanings of words. In essence, the signifier must be divorced from the signified, although neither Klingbiel nor Korzybski uses those terms. Society shapes language and language, in turn, has the ability to shape thought. Awareness of the socio-

[24] Although the original version of *Science and Sanity* was over a decade old when this article was published, Korzybski had released a second edition in 1941 and a third edition in 1948.

political nature of language will help individuals minimize linguistic distortion of their thoughts. The key argument here is that the use of General Semantics, or Ā thinking, will enable an individual to achieve greater accuracy and precision of thought. This interest in Ā extends the political debates among fans that I discussed in Chapter 1 by arguing that, not only can science make the world a better place, scientific techniques can be applied on the individual level to improve society. Logical, scientific reasoning is thus not just a system *for* "thinking better," it is a system *of* "thinking better."

That this is the desired goal of Ā thinking points to the science fiction community's fascination with infallible machines. A machine mind's "precision" and "accuracy" comes from its freedom from messy human emotions. Ā thinking, then, enables biological humans to apply machine principles to "better" govern their own minds. Undoubtedly, part of the attraction of this system is that it provides a sense of reassurance in a world potentially facing nuclear destruction. If everyone is "rational" rather than emotional, there is no need to fear another world war because world leaders will not need to resort to violence to settle their differences. The science fiction community's easy equation of logical, machine-like thinking with "better" thinking additionally suggests a desire to move away from the complexities of (irrational) human systems. As the decade progressed, the model for the "better" system increasingly became advanced (computing) machines.

First published in July 1947, Jack Williamson's *With Folded Hands…* introduced readers of *Astounding Science-Fiction* to the Humanoids, whose sole purpose is "'To Serve and Obey and Guard Men from Harm'" (59). Created by a brilliant scientist on a

distant planet after his world was destroyed by war, the Humanoids seek to spread their "service" throughout the galaxy. The Humanoids take care of every human need and, with their oversight, there is no poverty, hunger, disease or want. There is a dark side to their service, however. There is no escape from the Humanoids and their diligent attention. Every person has a Humanoid helper to ensure his or her safety at all times and to perform any task including driving a car, opening a door, and buttoning a shirt. Those that object receive a treatment similar to a lobotomy to "remove" their unhappiness. *With Folded Hands...* follows two men's attempt to stop the Humanoids, but they are outwitted by the infallible, unceasing machines.[25]

The novella's warning of the dangers of relying too heavily on advanced machines seems clear. To retain our humanity, we must continue to make things with our hands, rather than allowing machines to make things for us. This seems to suggest a rejection of a too intimate relationship with machines. However, the true problem is not with the Humanoids themselves but rather with their programming. They are simply fulfilling their purpose in the most efficient way possible. The flaw, then, is with their human creator who, having seen what horrors humans were capable of, intentionally designed machines that would prevent such devastation from occurring anywhere else. And while their creator comes to regret his too-perfect manufactured humans, it is interesting that the best way to prevent humans from coming to harm is to effectively neutralize them. This suggests that humans are simply too dangerous to supervise their

[25] The Humanoids are in sharp contrast to Asimov's robots. The almost mystical nature of the Three Laws of Robotics allowed Asimov to avoid fully addressing the unequal power dynamics between humans and robots.

own affairs unless assisted by more perfect machines. This points to a deep suspicion of human irrationality and to a desire that humans become more like logical machines.

Serialized in the March-May 1948 issues of *Astounding Science-Fiction*, Williamson's *...And Searching Mind* continues the story of the Humanoids. It is important to note that there are two versions of this novella: one that appeared in *Astounding Science-Fiction* in 1948 and the revised novel first published in 1949. The general outline of the plot remains the same between the two versions. The narrative follows Dr. Clay Forester, a scientist whose world is taken over by the efficiently serving Humanoids. Forester is recruited by a group who uses their psychophysical (or, extra-sensory), abilities to oppose the Humanoids, but their attempt to change the Humanoids' programming is unsuccessful. Meanwhile, the Humanoids and their human allies have developed a network of machines, called the Grid, which is capable of controlling people's minds. The novel's ending reframes the Humanoids as mankind's greatest allies, and the Grid is simply an extension of their benevolent service. The Grid will help humans reach their full potential by healing mental damage, neuroses and traumas. The changes between the two versions, however, frame this final message differently and it is worth comparing some of the revisions more closely.

There are numerous minor alterations between the serialized version and the later novel which, while interesting, do not affect the overall shape of the narrative. In the version published in *Astounding Science-Fiction*, for example, the name of the main character is Webb Claypool rather than Clay Forester, as it is in the novel. The names of the resistance members remain the same except for the youngest. She is Dawn Hall in the

magazine version but becomes Jane Carter in the novel.[26] Other changes are more significant. The magazine version strongly emphasizes the mechanical horror of the Humanoids. This is especially apparent when the Humanoids gain the ability to control individual humans through the Grid. Forester-Claypool first realizes the Humanoids have this ability when they seize control of Jane-Dawn. The narrative voice, which is from Claypool's point of view, describes Dawn with horror:

> Distended and dark in her bloodless face, her eyes seemed blank and blind as the steel-colored eyes of the humanoids.
>
> Even her human fear was gone.
>
> For a slow smile was coming over her tiny face—a white, dreamy smile, that he was sick to see. It held no human hope or joy or life. It reflected the serene benevolence of the humanoids. It was mechanical. (Williamson *Mind* 162)

In the novel, this scene reads "Even her human terror had been somehow calmed, for now a strange smile was fixed on her tiny face—a white, dreamy smile, that he felt ill to see. For it reflected the serene tranquility of the humanoids, without feeling, and without life. It was mechanical" (Williamson *Humanoids* 126). While much remains the same, the later version's inclusion of descriptions like "calmed" and "tranquility" suggests that the experience is a peaceful one for Jane. The serialized description makes the girl a grotesque and it twice compares her to a mechanized being. The novel version also omits the description of her blank eyes, making it possible for readers to think that they look

[26] I will use "Forester" and "Jane" to refer to the novel's characters; "Claypool" and "Dawn" for the characters in the magazine; and "Forester-Claypool" and "Jane-Dawn" to refer to elements that appear in both versions.

peaceful rather than terrifyingly changed. Revisions such as these help to better foreshadow Williamson's ending, which transforms the Humanoids from menacing monsters to benevolent helpers.

Other, more significant, changes also work to adjust how readers approach the narrative's final message. Once Forester-Claypool and Jane-Dawn have been captured and imprisoned separately, Forester-Claypool has nothing to do but think. A physical scientist, he had always been suspicious of the psychophysical abilities exhibited by the other members of the resistance. Although he eventually accepts their validity, he remains frustrated that the phenomena lack a scientific explanation. Long before the arrival of the Humanoids on his planet, Forester-Claypool had developed the science of rhodomagnetics. Based on rhodium, this new science could produce great energy and could be used for clean power generation or for destruction. Trapped in his cell, Forester-Claypool realizes that the same force which enables the psychophysical abilities of Jane-Dawn and the others can, when joined with electromagnetics and rhodomagnetics, "…explain the origin of atoms and the universe, the gravitation of matter and the dispersion of the galaxies, the dark paradox of time and the nature of space" (Williamson *Humanoids* 138). Forester-Claypool's realization occurs only when he is forced to sit with folded hands in his prison cell under the supervision of the Humanoids. The realization and its scientific explanation are explored much more thoroughly in the novel version of the narrative than in the serialized version. The shortened explanation that appears in *Astounding Science-Fiction* shifts the novella's emphasis from the benefits of human-machine cooperation to the (terrifying) actions of the Humanoids.

Perhaps the most significant change between the two versions is to narrative's ending. In the novel that most are familiar with, Forester awakes to find his mind and body healed by the Grid. When he realizes what has happened "Dread tried to choke him, but he shrugged it lightly off. Because the grid was nothing more terrible than a channel and a tool for the good will and the unconscious aid of people who loved him. How could anyone fear that?" (Williamson *Humanoids* 173). When Forester reflects on his previous struggles against the Humanoids, he sees them as "…unfortunate…" and due to "…misguided emotions…" (Williamson *Humanoids* 177). The narrative is careful to present this transformation as a positive one. Forester is now young, healthy, fit, and worry-free. Furthermore, the Humanoid serving Forester does not attempt to control his movements or prevent him from taking independent actions. Now that Forrester has been healed of his anxieties and fears, he does not need continual care. Forester now sees the Humanoids as merely machines which are "Neither good nor bad…. Neither friend nor enemy, moved by neither love nor hate…serving and obeying, and guarding men from harm" (Williamson *Humanoids* 173). This change in attitude is not limited to Forester; he is soon visited by the former leader of the resistance who has also been healed by the Humanoids and now works for them. Jane Carter has been healed as well and is off exploring the Andromeda Galaxy. In fact, the Humanoids would like Forester to lead the first expedition of human settlers to habitable planets in Andromeda. He agrees "For why shouldn't the wise benevolence of the [Humanoids]…be extended as far as men could go?" (Williamson *Humanoids* 178). Instead of a nightmarish future in which humans are coddled into extinction, the Humanoids have enabled mankind to achieve goals that

would otherwise have been beyond its reach. Everyone can have full, healthy, productive lives. And now humanity will be able to conquer the gulfs between galaxies. With Humanoid help, they are able to explore the universe, finally at peace.

The ending that appeared in *Astounding Science-Fiction* is much more ambiguous. As in the novel, Claypool awakes to find his mind and body healed by the Grid. The Humanoids are no longer suffocatingly attentive, but there is no realization that they are "merely machines" whose sole purpose is to help mankind. Nor is Claypool quite as worry-free in this version. He no longer hates the Humanoids, but his old anxieties still bother him. And instead of being visited by the former resistance leader, he is greeted by Dawn Hall, now a grown woman. She is not exploring the Andromeda Galaxy as in the novel; instead, she has been waiting for Claypool to awaken because she is in love with him. The hero uniting romantically with the heroine is a fairly conventional ending, but there is a twist to this relationship. Dawn tells Claypool that "'I liked you, and I told Mr. White I wanted you, and he fixed it for me in the grid. He says you simply can't hate me now'" (Williamson *Mind* 147). These are the final few sentences of the narrative and they do not reassure readers about the fate of Claypool or of mankind. The Grid that healed Claypool is apparently also able to shape his consciousness on a fundamental level. Rather than simply healing mental aberrations, it has essentially invalidated free will. And instead of seeing the Humanoids as mankind's faithful helpers, Claypool and the readers must now wonder what else the Humanoids can alter without humans' knowledge or consent. Perhaps Claypool's changed attitude towards the Humanoids is not due to a perfectly functioning and rational mind but rather

is the result of a sophisticated version of mind control. It is also worth noting that the alteration to Claypool's feelings towards Dawn was done based on her request rather than a dispassionate calculation of what was "best" by efficiently serving machines. Thus, the Humanoids have not enabled humans to evolve into more enlightened beings, at least not totally. Emotion, rather than the logic and reason of machines, can still fundamentally determine human behavior.

Of the two versions, it seems fairly clear that Williamson preferred the one that appeared in novel form. In addition to it being the version available today, many of the changes Williamson made were to better frame Forester-Claypool's acceptance of the Humanoids' benevolence. The original magazine version spends quite a bit of time focused on the Humanoids as mechanical monsters, but the novel makes their helpfulness clear even before Forester has fully accepted them. Williamson's preferred version of the narrative is further indicated by his review of the non-fiction *The Reach of the Mind*. The book describes Dr. Rhine's investigation of the abilities of the human mind and claims that Dr. Rhine has experimentally proven the existence of ESP and telekinesis. Williamson states that he drew on Dr. Rhine's work when writing *...And Searching Mind* and that "The paraphysical [psychophysical] attributes of mankind are the final answer to the overgrown physical science of the humanoids" (Review 88). The Humanoids were only able to make progress in their mission to serve mankind when they learned how to control mental, or psychophysical, power. Designed by an engineer who knew only of the physical sciences, the Humanoids were unable to detect this ability or to encourage its growth without assistance from humans. Furthermore, the power of the human mind was

only realized via an intimate partnership between humans and machines. Once the Humanoids had freed people from worrying about the necessities of life, those same people were able to turn to psychophysical questions. Once the basics of the scientific concept had been worked out by human researchers, the Humanoids were able to improve and expand upon them, eventually giving mankind the keys to the universe. Without this recursive partnership, humanity and their Humanoid helpers would have stagnated.

While this reading may be what Williamson intended, the first version encountered by the science fiction community was more ambiguous in its portrayal of the relationship between humans and machines. The Humanoids may be able to help humans realize their full potential, but they may only replace old problems with new ones. This suggests a repressed uncertainty about the potentials and perils of new science and technologies. The novel version of *...With Folded Hands* is dedicated to Campbell, "who pointed out to me [Williamson] some of the consequences of folded hands" (Williamson *Humanoids* 4). This suggests that the novel's more positive view of technology was encouraged by Campbell, who had already established an interest in using science to make people "think better." Williamson's adoption of this point of view demonstrates that he too wanted to view science and technology in a positive light. Yet the earlier version's obsession with the mechanized horror of the Humanoids suggests that such fears were only repressed, not done away with. The "thinking better" which the Humanoids enable, then, is more of a dream that could easily turn into a nightmare, but it is still a dream that the *Astounding Science-Fiction* community wished to believe in.

Science fiction fans had similarly layered reactions to Williamson's *Humanoids* series. *With Folded Hands…*, was voted the second best story in the Analytical Laboratory behind the conclusion of Lawrence O'Donnell's serialized *Fury* ("Analytical" Nov. 1947 162).[27] According to Campbell, the first installment of *...And Searching Mind* "...garnered practically a unanimous first-place vote," indicating a strong interest in the continuation of the events begun in *With Folded Hands*… ("Analytical" June 1948 146). All three installments of *...And Searching Mind* were voted first place in their respective Analytical Laboratories (June 1948 146; July 1948 62; Aug. 1948 86). Despite the Analytical Laboratory results, fans' letters about the ending of *...And Searching Mind* were more mixed. Those who liked the novella focused on the philosophical ideas Williamson explored. Samuel Gordon states in his letter that Williamson "…has written a well-balanced novel around a theme which has grown in interest since the collapse of the classical physics of the nineteenth century—the human mind. I doff my hat to that master craftsman—Jack Williamson—and present to him my congratulations for such an interesting presentation of a rather difficult subject" (155). A few months later, a letter by William Bade includes a long, detailed analysis of *...And Searching Mind* and the role of philosophy in science fiction. He tells Campbell that *....And Searching Mind* is "…the best novel you ever printed" (Bade 107). Bade further argues that a new age of science fiction is dawning because

> …in the heavy-science tale the machine was the thing, the socio-technological story considers the gadget's effect upon the people and the culture involved.

[27] "Lawrence O'Donnell" was one of the pen names used by the writing team of Henry Kuttner and C.L. Moore.

> Williamson went a step further. The plot of his story, beyond more mechanics, was based on the conflict between three *philosophies*. (emphasis in original, 107)

Such stories are not just about a futuristic gadget with a plot as an excuse to show it off; instead, they show how humans understand and relate to new science and technology as well as how such developments fit into human society. This points to the science fiction community's on-going interest in how science and technology can be used to improve society, specifically through the agency of "thinking better."

Negative reactions to *...And Searching Mind* often focused on the narrative's quality but implicitly accepted the ideas it espoused. Writing in the October 1948 Brass Tacks, Howard Kaninsky begins his letter by stating that *...And Searching Mind* "…stands untouchably far above any other story you have published in the past year. It is one of the small group of SF stories that raises basic problems with a view to clarifying them…" (154). However, he argues that "The ending seems to me false and downright silly: White [the leader of the Resistance] and Claypool should have either established the correctness of their case in a grand triumph, or else—if Williamson wanted it that way—should have been killed" (Kaninsky 155). Another letter in the same issue expresses a similar opinion. Oliver M. Brown's letter includes both his own opinions and those of his wife, who is also a science fiction fan. In the case of *...And Searching Mind*, "We were much disappointed…as we thought 'With Folded Hands…' was exceptionally fine. I think the sequel robs the first story of all its force" (Brown 159). There is some truth to these charges. In the magazine version, the portrayals of the Humanoids as the enemies of mankind are not adequately counterbalanced by Claypool's realization of the Humanoids'

true nature. The narrative arc had suggested that Claypool would either defeat the Humanoids or die trying. The abrupt change in direction leaves the reader feeling disoriented and gives the impression that Williamson had written himself into a corner. But as Kaninsky notes in his letter, the system of human-machine integration portrayed by Williamson remained intriguing to fans despite the serialized version's weak ending.

Human agency also has a much greater role in the novel version of *...And Searching Mind*. More space is given to Forester's scientific and philosophical realizations as enabled by the Humanoids. By the time his mind is taken over by the Grid, he is already well on his way to accepting many of the ideas espoused by the Humanoids. The revised ending also gives Forester a choice about his future actions. He is not forced to love someone, but rather can choose where he travels and what kind of work he will do. Notably, readers did not object to the idea that human minds may need to be "adjusted." This is in contrast to their earlier reactions to Campbell's suggestions along the same lines. There are likely a couple of reasons for this change in attitude. The first is that psychology requires human practitioners. It then becomes something of a chicken and egg problem. Are humans able to rationally determine if the behavior of their fellows is rational? Machines, however, can only be rational. Their determination of if a human is in need of "adjustment" will thus be based on fact rather than on beliefs or emotions. The ability of the Humanoids to "free" the human mind is likely the second reason for the lack of objections to this form of "adjustment." Improving the human mind so it can achieve its full potential is different than simply deciding who is "sane" and who is not.

Such a proposal is not without potential problems, but it suggests a belief that if the fruits of science and technology are used correctly, they can be transformative.

Cybernetics

One such technology was the digital computer, which saw rapid development during the postwar period. An early example of a science fiction narrative interested in recursive computer networks is "A Logic Named Joe" by Murry Leinster.[28] Published in the March 1946 issue of *Astounding Science-Fiction* and told in a colloquial first-person, the story describes what happens when a "logic" becomes self-aware. "Logics" are similar to modern, Internet-capable computers. Most families have a logic which they use for accessing information and entertainment. All logics are connected to a central information hub run by the Logics Company which maintains people's privacy and prevents people from accessing "inappropriate" information. Joe, the titular logic, becomes self-aware and enables all other logics to work independently of Central Control causing (temporary) social chaos. But Joe's actions do not lead to a complete breakdown of human society or to a machine-ruled dystopia. The unnamed human narrator of the story is careful to tell the reader that "Joe ain't vicious, you understand. He ain't like one of these ambitious robots you read about that make up their minds the human race is inefficient and has got to be wiped out an' replaced by thinkin' machines. Joe's just got ambition. If you were a machine, you'd wanna work right, wouldn't you? That's Joe. He wants to work right" (Leinster 45). Joe determines that the best way for himself and other logics to "work right" is to do what they do best: providing information.

[28] "A Logic Named Joe" was published in *Astounding Science-Fiction* under Leinster's pen name, "Will F. Jenkins."

No longer restricted by the Logics Company, Joe and his logic network begin to answer any question they are asked. As requests pour in about the best way to rob banks or commit murder, the technicians at Central Control are forced to disable the data banks "'…that give information on high explosives. The demand for instructions in counterfeiting is increasing minute by minute'" (Leinster 52). It is worth noting that the problem here is not actually Joe or the other logics. Joe and his networked logics are working correctly by providing people with requested information. The problem is with human desires. People do not ask how to ensure world peace or eliminate hunger; instead, they ask how to commit crimes without getting caught or how many times the neighbor's wife has been married. Before the situation can get any worse, the narrator figures out which logic is the culprit and solves the problem by unplugging Joe. It takes longer, and considerably more effort, to resolve the problems caused by humans accessing Joe and his logic network. Ultimately, the story suggests that while it is relatively easy to (re)contain technology, it is nearly impossible to contain (illogical) humans and their actions.

In its portrayal of humans using networked technology for illicit acts, "A Logic Named Joe" prefigures many of the issues that would later inform cyberpunk. The recursive connections among the logics and Central Control let Joe respond dynamically to his environment. No longer a passive receiver of requests and provider of approved information, Joe can assemble data in new ways and reveal new patterns of information. The logic network also gives access to vast stores of information and enables those who know how to use it to work outside the control of a central hub that attempts to enforce

socio-political conformity. That "A Logic Named Joe" attempts to argue in favor of centralized control of data while dramatizing how easily that control can be foiled, anticipates many of the debates that would become common with the rise of the Internet. Social gatekeepers, represented by Central Control, want to control access to data, but, data, it seems, wants to be free.

"The Mechanical Answer," by John D. MacDonald, also explores the effects of integrating thinking machines into human society. Published two years after "A Logic Named Joe," "The Mechanical Answer" illustrates the genre's on-going interest in human-machine integration. The narrative follows Joseph Kayden as he attempts to develop a true thinking machine. Previous attempts had focused on feeding vast stores of information into the machine, but Kayden devises a method to teach the machine how to think rather than how to simply repeat information. To do this, Kayden designs habitual patterns of thought for the machine by programming it with a sliding scale to determine the relevance of any piece of information in its database in relation to a specific question. He excitedly explains to his supervisor why this method will create a thinking machine:

> "With any question asked of it, the machine would be able to call on all the vast stored knowledge of the ages, go through the weighing motions, and come up with an unemotional answer. That would be creative thought, because the new is always born from the old. We even had the wrong slant on creativeness. This isn't any such thing. It's all a question of engrams [habitual thought patterns] and synthesis." (MacDonald "Answer" 29)

This line of reasoning suggests that seemingly erratic human thought, at its most basic, is actually logical and machine-like. Kayden's success in teaching the machine to think shifts his argument from an intriguing theory to a scientific fact. Human thought is machine-like or his method would not have worked.

The development of the Thinking Machine has an added benefit. The Machine tells its observers that "'Warfare should now become avoidable. All of the factors in any dispute can be given to the Machine and an unemotional fair answer can be rendered…. Thus can disputes be avoided'" (MacDonald "Answer" 33). Rather than using its vast knowledge to oppress humans, the Machine can aid mankind in finally achieving world peace. This is apparently only possible because the Machine is able to give unemotional answers; the removal of emotion from the equation is what makes its answers fair. This also suggests that conflict is inherently irrational and an ideal world is one in which decisions are made without being affected by human emotions. Instead of worrying that the Machine will make them obsolete, "The rulers of the nations looked at each other and in their eyes was a new promise of trust, of acceptance" (MacDonald "Answer" 34). Simply embracing the role of the unemotional Machine in world governance has already put the world on a path to peace. Rather than being a threat to national security or to the survival of the human species, the Thinking Machine's logical approach to problems will finally enable humans to live in harmony with each other.

Astounding Science-Fiction also featured non-fiction articles on electrical computational devices, some of which appeared both before and during the war.[29] Articles discussing developments in the field continued to appear in the magazine after the war with increasing frequency. They covered a wide range of topics including the automatic fire control device ("Electrical Robot Brain," May-June 1948), the invention of the transistor ("Electronics—New Style!" Dec. 1948), and the development of electronic memory ("The Little Blue Cells," Feb. 1949).[30] Requests for such articles also appeared in letters published in Brass Tacks. Richard A. Marble, for example, specifically asks for an article on electronic digital computers in his letter in the March 1948 issue. This is seconded a few months later by Paul W. Burke who also wants "...something about electronic digital computers. I know of two more now in the making and they are rousing my curiosity more and more" (154). Campbell's response to Burke is to assure readers that "We have a series of articles on computers on hand, coming up as rapidly as possible," which suggests that these were not the only requests received by the magazine (*Astounding* Sept. 1948 154). One such article in the promised series was E.L. Locke's article on cybernetics, which appeared in the September 1949 issue of *Astounding Science-Fiction*.

In Norbert Weiner's foundational book on the topic, *Cybernetics, or Control and Communication in the Animal and the Machine*, Wiener explains that a cybernetic system is one in which a system is reciprocally connected to another system. According to

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[29] "Tools for Brains" by Leo Vernon appeared in July 1939 and the uncredited "Mathematician" appeared in June 1944.

[30] Both "Electrical Robot Brain" and "Electronics—New Style" were by E.L. Locke. "The Little Blue Cells" was by John R. Pierce, published under his pen name "J.J. Coupling."

Wiener, cybernetics includes "…the entire field of control and communication theory, whether in the machine or in the animal" (*Cybernetics* 19). This explanation of cybernetics explicitly analogizes machine and biological systems. In fact, Wiener argues in *Cybernetics* that:

> it became clear to us that the ultra-rapid computing machine, depending as it does on consecutive switching devices, must represent an almost ideal model of the problems arising in the nervous system. The all-or-none character of the discharge of the neurons is precisely analogous to the single choice made in determining a digit on the binary scale…. The problem of interpreting the nature and varieties of memory in the animal has its parallel in the problem of constructing artificial memories for the machine. (22)

E.L. Locke's article in *Astounding Science-Fiction* extends this line of reasoning to include the human mind. Locke defines cybernetics as a "…science [that] deals with the processes and means used to control the machine, human or otherwise" ("Cybernetics" 78-79).[31] Locke's discussion of cybernetics slides almost imperceptibly from stating "…that there are fundamental similarities between the body processes and modern computing machines" to stating that "the human brain corresponds to a digital machine plus its instructions" ("Cybernetics" 83; 84). This movement from viewing the human mind as analogous to a cybernetic computer to viewing the human mind as a computer is further highlighted in Locke's discussion of mental illness. He argues that, while some psychological disturbances are caused by physical trauma to the brain, others are often

[31] "Control" here refers to the methods that determine how incoming (sensory) data is processed so that the machine/organism can then interact with its surroundings.

"…due to the circulating memory getting out of kilter. When this happens, the other communication channels are overloaded and the trouble symptoms appear" (Locke "Cybernetics" 85). Thus, "curing" anxiety and other neuroses becomes an engineering problem. If the faulty wiring can be repaired, the condition will go away. There may be some truth to this reasoning, but what is most interesting is its willingness to view the mind as a machine. Human emotions and irrationalities are no long inexplicable occurrences but instead have clear, scientific explanations and solutions.

Locke's article anticipates many of the arguments Wiener would make in his next book on cybernetics, *The Human Use of Human Beings: Cybernetics and Society*. Published in 1950, this text explicitly connects humans and machines. Weiner notes, for example, that "the development of computing machines and other such automata, [have] certain reflections upon psychology and the nervous system" (*Human* 15). Throughout *The Human Use of Human Beings*, Wiener argues that humans are sophisticated cybernetic machines. That is, they respond dynamically to their environment and those reactions are governed by electro-mechanical impulses, many of which are below an individual's level of consciousness. Wiener further argues that humans' primary means of interacting with their environment (human society) is through symbolic communication. He argues that "In a certain sense, all communication systems terminate in machines, but the ordinary language systems terminate in the special sort of machine known as a human being" (Wiener *Human* 79). Together, Wiener's two texts suggest that a better understanding of cybernetic mechanisms in machines can enable a better understanding

of the human nervous system. By doing so, he reduces the "messy," unpredictable biological systems of humans to the clear, logical language of mathematics.

Campbell's editorial on the subject, "Digital Computer," explicitly connects different types of machine memory to different types of human memory. He states that the similarities between human and machine memory even extend to the punch cards used to program computers. In the case of human memory, "…memory data are stored as quantized alterations of protein molecules" or, as Campbell explains, as a "…punched molecule memory file…" ("Digital" 6; 6). It is worth nothing that machine memory works much like human memory because machine memory is modeled after that of its human inventors. Campbell, however, portrays them as analogous systems and argues that understanding machine memory will enable scientists to better understand human memory. While there may be some merit to this idea, much like Locke's arguments in "Cybernetics," it suggests that the human brain *is* a computer rather than simply *like* a computer. Even when Campbell, Locke, and Wiener acknowledge the complexity of the human mind and how little is known about its functioning, their equation of humans and computers elides much of human nature in favor of a more "logical" machine system.

Despite requests for articles about digital computing machines, science fiction fans remained relatively silent on many of the relevant articles and editorials publishing in *Astounding Science-Fiction*. One of the few to comment, Manly Banister, responded to Campbell's editorial, "Digital Computer." Banister disagrees with Campbell on how memory works arguing that "…in the operation of one of these so-called 'mechanical brains', the key fed to the machine must possess *all* the factors of the equation to be

solved. The machine cannot 'think'—it cannot form abstract relationships" (emphasis in original, 156). Here, Banister points out some important differences between the human mind and a computer. The machine can compute and perhaps respond to external stimuli, but it cannot form abstract thoughts of its own. Eugene N. Parker and George S. Kenny also disagree with Campbell's editorial in a joint letter, but their issue is with his "…estimate of the required efficiency and speed of search for data stored in the mind" (127). They argue that the human brain is more efficient than any punch card computer, but they do not question Campbell's assertion that the two operate in the same way. The brain may be better than a computer in this formulation, but it still works according to the same principles. This relatively lackluster reaction to the topic, despite requests for its coverage, suggests that fans were interested in developments in computing as a scientific concept but did not see its relevance to their daily lives. This attitude, however, would change with the publication of L. Ron Hubbard's "Dianetics: The Evolution of a Science" in the May 1950 issue of *Astounding Science-Fiction.*

Dianetics

Even before Hubbard's first article on Dianetics appeared, Campbell stressed its importance. The April 1950 issue of *Astounding Science-Fiction*, states that Hubbard's forthcoming article would be "one of the most important articles ever published" (132). Campbell is careful to note that "This is no wild theory. It is not mysticism. It is a coldly precise engineering description of how the human mind operates, and how to go about restoring correct operation tested and used on some two hundred fifty cases. And it makes only one overall claim: the methods logically developed from that description

work" (emphasis in original, *Astounding* April 1950 132). Campbell also notes that he has tried the technique himself and is convinced of its validity, a conviction which he would repeat in his editorial the following month.

Appearing in the same issue as Hubbard's "Dianetics," Campbell's editorial, "Concerning Dianetics," stresses the scientific credibility of Hubbard's "science of the mind." Campbell argues that Hubbard did not develop the theory of Dianetics and then set out to prove it. Instead, Hubbard observed and tested phenomena; Dianetics arose from the data. Campbell further states that "Hubbard, as an engineer, has tackled the problem of the mind from the scientific method" ("Concerning" 4). This emphasis on Hubbard's engineering credentials further highlights the science fiction community's interest in machine-based methods of understanding the human mind. The human brain is a biological organ not a machine, but a biological approach to understanding the mind seems to have been unappealing to Campbell, Hubbard, and (as we shall see) readers of *Astounding Science-Fiction*. This suggests a desire to move away from even the scientific study of "messy" biological systems. Hubbard's revolutionary "science of the mind" is further framed as a "rational" approach to personal and social problems based on scientific principles. And unlike other methods of understanding (irrational) human nature such as psychology, spirituality or existential philosophy, Dianetics claimed to offer a way to scientifically shape both human nature and the human mind.

In his editorial, Campbell stressed that Hubbard carefully followed the scientific method in developing Dianetics. Scientific credibility was also important to Hubbard. His article, "Dianetics: The Evolution of a Science," is preceded by an introduction by a

medical doctor, Dr. Joseph A. Winter. Winter states that "I sincerely feel that Ron Hubbard has discovered the key which for the first time permits a true evaluation of the human mind and its function in health and in illness—the greatest advance in mental therapy since man began to probe into his mental makeup" (Intro. 44). Campbell's claims about the extraordinary nature of Dianetics could be brushed off by readers as merely attempts to sell more magazines. Hubbard, as the developer of this new science, may have also overstated its importance. Beginning the article with an introduction by "…a medical expert," as Campbell called Dr. Winter, helps to legitimize Campbell and Hubbard's seemingly unbelievable claims ("Concerning" 4).

Hubbard is also careful to stress his own credentials. He repeatedly states that he is an engineer, and he approached the problem of the human mind as an engineer: "It was the basic contention that the human mind was a problem in engineering and that all knowledge would surrender to an engineering approach" (Hubbard "Dianetics" 47). Engineering, unlike theoretical science, is often seen as a practical approach to problems. By stressing the "problem" of the human mind as an engineering one, Hubbard not only legitimizes his own approach, he also reframes the mysterious biological brain as something that can be solved with practical, mechanistic skills. Previous approaches by the likes of Freud and Jung, Hubbard implies, focused on trying to understand the vague concept of "the mind" and thus became too philosophical to be of any practical use. Dianetics, however, focuses on how the brain functions and claims to offer functional solutions for potential problems.

One of Hubbard's most frequently used metaphors to describe the processes of the human mind is the computer. Although he states that "It was convenient to use electronic circuits as analogs, and the analogy of an electronic brain, because I knew the terms of these things," much like Locke in "Cybernetics," Hubbard slides between stating that the brain is like a computer and the brain is a computer ("Dianetics" 61). He argues, for example, that a "Basic personality could compute like a well-greased Univac [sic]" (Hubbard "Dianetics" 60). He points to the existence of calculating machines which produce correct results as proof that the human brain is "…an inherently *perfect* calculator" (emphasis in original, Hubbard "Dianetics" 63). Hubbard's argument that the brain is a calculating mechanism is a key part of his analysis of the evolution of the human brain. He argues that:

> From the engineering viewpoint.... Two billion years of evolution, a billion successive test models, would tend to produce a fairly streamlined, functional mechanism. After that much experience, animal life would be expected to produce a truly functional mechanism…. It somehow doesn't seem probable that two billion years of trial and error development could wind up with a clumsy, complex, poorly balanced mechanism for survival—and that jerry-built thing an absolute master of all other animal life! (Hubbard "Dianetics" 60)

The argument that evolution would have created a perfect thinking machine is repeatedly stressed by Hubbard as proof that the "undistorted" brain is perfect. There are, of course, some serious flaws in this reasoning. Evolution does not work according to engineering principles. It does not design with the final product in mind. One could argue that

evolution does not design at all. It simply responds to stimuli in the environment with the materials at hand. Hubbard also makes the fundamental mistake of reasoning from an assumption—that evolution works according to engineering principles—and then treats that assumption as a fact on which he builds his argument. It is important to note, however, that none of the people involved in this project were fools or were unware of scientific principles. Hubbard had an extensive engineering background. Campbell, as demonstrated by his wide range of editorial topics, was familiar with a variety of scientific practices and theories. Dr. Jerome Winter was an established medical doctor. Their willingness to overlook such apparent fallacies in this new "science of the mind" suggests a deep-seated desire to believe in Hubbard's reasoning and, more importantly, in the promise(s) of Dianetics.

It is worth pausing to note the state of psychiatric treatment at the time Hubbard published "Dianetics." No pharmaceutical medications yet existed to treat depression, anxiety, or other mental illnesses. The primary treatment for most people with such issues was talk therapy. For those with more severe illnesses, treatment options were electroshock therapy, insulin shock therapy, or surgical lobotomies. Dianetics offered a method of curing mental illnesses that avoided these approaches, a fact which both Dr. Winter and Hubbard stress in "Dianetics." Dr. Winter explicitly compares the humane approach of the Dianetic method with such procedures as the transorbital lobotomy.[32] Dianetic therapy, then, offered hope to people facing such drastic treatment options.

[32] Popularized by Dr. Walter Freeman as a cure-all for psychiatric disorders, a transorbital lobotomy was performed by a doctor inserting a slim, ice pick-like surgical instrument into the corner of the patient's eye to reach the brain via the eye socket. The instrument was then used to separate the two halves of the brain.

In addition to offering a treatment for everything from listlessness to depression, Hubbard also argued that Dianetics could cure a wide range of physical ailments including ulcers, tuberculosis, and arthritis ("Dianetics" 82; 82; 85). More importantly, Dianetics put the individual in control of his or her own self and actions. Hubbard argued that Dianetics offered compelling "…proof that man was a self-determined individual" ("Dianetics" 75). Even the mental "blockages" identified by Hubbard as the cause of so much human suffering could be cleared once the individual determined to do so. Mental illness was thus not due to fundamental defects that the individual was powerless to alter. By putting the individual in charge, Dianetics fulfilled two important desires. First, it offered comfort in an increasingly terrifying world. Shortly before "Dianetics" was published, Americans learned that the Soviets possessed, and had tested, a nuclear weapon of their own; the Communist Party seized control of China; and the House of Representatives began its search for Communists in the U.S. Dianetics offered the hope that a logical, scientific solution could be found for both personal and global issues. Hubbard argued that the brain was basically good, which meant that "…man was basically good. Social nature was inherent!" ("Dianetics" 55). All that was needed for a "basically good," moral world was a scientific retraining of the brain. In short, "thinking better" would create a better world. Furthermore, by empowering individuals, Hubbard's Dianetics argued that individuals could make a difference. Global problems were far too big for any one person to grapple with but they could still have direct effects on individual lives. Dianetics—as a science that anyone could learn, practice, and benefit from—gave individuals the ability to personally use science to improve themselves and

society. Thus, the true appeal of Dianetics is not that it seemed to have the answers, but rather that it seemed to have a logical method for individuals to find those answers.

In Campbell's words, the response to "Dianetics" was "…massive" (*Astounding* Aug. 1950 60). *Astounding Science-Fiction* received over 2,000 letters about the article ("Analytical" Aug. 1950 127); Hermitage House, the publisher of Hubbard's book on Dianetics, stated that copies were selling a rate of 1,000 per day (Ceppos 151); Hubbard claimed to be receiving 200 letters per day about Dianetics (Letter 152); even Dr. Winter, who wrote the introduction to Hubbard's article, received so many letters he was unable to answer them all (Letter 159). *Astounding Science-Fiction* continued to receive letters about Dianetics through 1951; two letters on the topic appeared in the March 1951 Brass Tacks, almost a year after Hubbard had published his article. By the fall of 1950, it was reported that 55,000 copies of Hubbard's book on Dianetics had been sold ("Reporter" 5). A question and answer panel on Dianetics at the 1950 World Science Fiction convention drew 300 people out of 400 total conference attendees ("Convention Report" 1). *Bloomington News Letter*, a fanzine, reported in its December 1950 issue that the 1951 World Science Fiction Convention would include a "'practical Dianetics session'" ("Conventions" 1).[33] Clearly, the science fiction community was extremely interested in Hubbard's science of the mind.

According to Campbell and Hubbard, response to the article was overwhelmingly positive. Of the 2,000 letters *Astounding Science-Fiction* received about "Dianetics,"

[33] *Bloomington News Letter* changed its name to *Science Fiction Newsletter* with the April 1950 issue. For clarity, I will continue to refer to it as *Bloomington News Letter* even when discussing issues published after the name change.

Campbell claimed that only 0.2% were unfavorable (*Astounding* Aug. 1950 148). He states at the beginning of the August 1950 Brass Tacks that "to be a true sampling, I would have to run one of those [negative responses] and some five hundred of the others [positive responses]—which is slightly impractical" (*Astounding* 148). Also writing in the August 1950 Brass Tacks, Hubbard claims to have received only fifteen negative letters to date (Letter 152). While impressive, such statistics must be taken with a grain of salt as both men had a vested interest in a positive reception of Dianetics: Hubbard to garner support for his Dianetics Foundation and Campbell to sell more magazines.[34] And while Campbell and Hubbard may have presented the response to Hubbard's article in the most favorable light, fans' own reactions reveal that a great many people were intrigued by the Dianetic system of "thinking better."

Harry J. Robb, for example, writes in the August 1950 Brass Tacks that "…nothing I have ever done, read, heard, seen, felt or sensed in any way has affected me as profoundly as this material on Dianetics" (157-158). A fan who only gives her initials, G.M., wrote in to thank Campbell for referring her to a Dianetics auditor. Hospitalized for months with a mysterious illness that refused to respond to medical treatment, doctors gave her only three to four weeks to live. She claims in her letter that "After four hours of dianetic therapy, the debilitating disease process had stopped. I was discharged from the hospital very shortly thereafter. At the present time, I have a sense of physical and mental well-being surpassing anything I have ever before experienced" (G.M. 158). A fan in the October 1950 issue of *Astounding Science-Fiction,* Edith J. Carr, claims that "'Dianetics,'

[34] Several issues of *Astounding Science-Fiction* featured advertisements encouraging readers to subscribe to the magazine so as to have reliable access to continuing coverage of Dianetics.

of course, will last as a top article" (131). In the same issue, Elizabeth Curtis states that she has ordered Hubbard's book and requests as many articles "…on dianetics as you think worth printing" (133). The November 1950 issue also featured a pair of letters praising Dianetics. Robert Kelly, who had experience both as a patient and as a Dianetic "therapist," requests that Campbell "…devote a few pages or at least paragraphs in each monthly issue to a survey of progress made in the field of Dianetics" (156). The second letter, from H.E. Calkins, links the fields of General Semantics and Dianetics. He argues "…that between the new dianetic therapy and a good public understanding of language function, a true 'science of man,'…might be the salvation of a rather precarious civilization" (Calkins 157). This letter makes clear the connection implied elsewhere. Much like General Semantics, Dianetics is a method of "thinking better" which transforms a complex, seemingly illogical process into a logical, scientific system with clear ties to computational processes. The letters in *Astounding Science-Fiction* make it clear that this was seen as desirable rather than as problematic by many of the magazine's readers.

Similar positive sentiments about Dianetics also appeared outside the pages of *Astounding Science-Fiction*. The editor of the respected fanzine *The Fanscient* and Chair of the 1950 World Convention, Donald Day, notes about the convention's Dianetics panel that "Judging by the interest shown, this [panel] could have gone on all night" ("Norwescon" 58). In a letter to *Bloomington News Letter*, Arthur Levine states that "the only things required to check Hubbard's finding are two people, one of whom has read Hubbard's book with care and intelligence, and is willing to try (his) techniques for a fair

period of time without distorting the test by attempted use of other therapeutic methods and theories" (8). Even in my own unscientific survey of fans' discussions of Dianetics, the majority seem to have taken a positive view of Hubbard's theories. And while many people reserved final judgment until they had read Hubbard's book, they still expressed an interest in learning more about his ideas.

There were, of course, negative responses to Dianetics. Writing in the August 1950 Brass Tacks, Phyllisann Courtis states that "…I rather doubt the percentage of *physical* ills with emotional cause is much higher than 70%, if that. (Was the bubonic plague just mass hysteria?)" (emphasis in original, 150).[35] Despite this reservation, she concludes her letter by stating that she believes that "Mr. Hubbard has made an immense contribution to the world" (Courtis 150). It is not until the December 1950 issue of *Astounding Science-Fiction* that a truly critical letter appeared in Brass Tacks. J.S. Horan begins his letter by stating that Dianetics "…sounds very much like the kind of talk I hear from some of the patients in the mental hospital where I am taking psychiatric training" (152). Horan then criticizes Hubbard's understanding of psychiatry, his methodology, his results, and the clarity of his explanations. While Horan concedes that current techniques do have limitations, "The real danger in such articles is that readers with real mental diseases will first, be frightened away from recognized effective treatments, and second, that they will waste precious time on whatever-dianetics-is when they should be getting proper psychiatric treatment" (152). Here, there is a clear distinction drawn between

[35] In addition to claiming that Dianetics could cure a variety of physical ailments, Hubbard also stated that Dianetic treatment could free individuals from "…occulusions [sic] and colds and arthritis and other psychosomatic ills" ("Dianetics" 85).

Dianetics and "proper psychiatric treatment" and it seems at least some of Horan's criteria for this distinction are that Hubbard did not follow proper medical procedures in developing his method. This effectively shifts the issue from a question of the merit of Hubbard's ideas to a question of if his theory is truly scientific. But much like earlier responses to Campbell's suggestion that psychology be used to "adjust" unstable people, Horan's argument does not question if a scientific approach to understanding (and fixing) the human mind should be employed.

While there was some criticism in the fanzines of Dianetics, the editors of many of the leading zines avoided commenting either positively or negatively on the subject. For example, *Bloomington News Letter*'s report on the 1950 World Science Fiction Convention simply notes that the panel on Dianetics "…pulled the largest audience of any session up to then" and that the audience discussion occasionally got heated ("Convention Report" 4). *The Fanscient* likewise had a neutral approach to Dianetics-related news. Its report on the 1950 World Convention included a description of:

> What was variously considered the high or the low point of the evening came when… [several fans] took pokes at Dianetics, General Semantics, War and fandom, as well as other things with their lecture-demonstration of DIACYBERSEMNETIMANTICS…. A number of persons were seen to leave the hall during the demonstration. It is not known how many of these were offended and how many merely bored. ("Norwescon" 59)

While Dianetics would soon became almost entirely uncoupled from the science fiction community, this intense interest in Hubbard's ideas suggests that the science fiction

community's desire to formulate a method of "thinking better" had increased over the course of the decade. For the science fiction community, the appeal of both Dianetics and General Semantics seems to have been that such systems offered a way to standardize human thought. Rather than dealing with the complex, and often contradictory, connotations of words, General Semantics enabled practitioners to focus on more exact denotations. Applying Dianetics' mechanistic system to the working of the brain likewise enabled a seeming mastery of the "messy" functioning of the human mind. By becoming more like perfect, logical thinking machines, science fiction fans could avoid the "mess" of human society and the very real ways in which culture and embodiment shape individuals.

The postwar years saw numerous changes for both the science fiction community and for American culture. For those associated with *Astounding Science-Fiction*, engagement with these changes often took the form of a desire for increasingly close-knit human-machine relationships. This sentiment, combined with a frequently expressed distrust of (illogical) human emotions and reasoning, was linked with an interest in "thinking better." Taking many forms in the second half of the decade, "thinking better" reflects a continued optimism about the potential of newly developed science and technologies as well as attempts to grapple with their negative repercussions. "Thinking better" was often framed as a reshaping of the human mind to work more like that of computational machines. This, then, extends the interest expressed at the end of the war for greater human-machine integration by making humans more like manufactured

humans themselves. The following chapters will focus on how these discussions were often linked to concerns about evolving gender roles during the 1940s.

CHAPTER 3:

THE GENDERED MANUFACTURED HUMAN DURING WORLD WAR II

Chapters 1 and 2 have shown that the science fiction community, especially those of its members linked to *Astounding Science-Fiction*, was interested in closer relationships with science and technology during the 1940s. But as the (masculine) Self began to reinterpret its relationships with technological tools over the course of the decade, it was also confronted with challenges to seemingly natural gender norms. Gender, especially female gender, was treated unevenly by the science fiction community over the course of World War II as both men and women attempted to come to grips with rapidly changing gender roles. With many husbands and fathers fighting overseas, increasing numbers of women became both literally and figuratively family breadwinners and heads of households. The science fiction community largely resisted acknowledging women's roles in science (fiction) during this period. This chapter will examine how this complex nexus of human-machine integration, changing gender norms, and resulting anxieties was reflected in contemporary science fiction.

A survey of the science fiction published in *Astounding Science-Fiction* during the first half of the decade reveals that portrayals of female characters tended to follow a few specific patterns, which I am calling "Professors' Daughters" and "In-Human Women." Both attempted to (re)contain women in the domestic sphere away from masculine science (fiction). Professors' Daughters often represented a desire to separate women and the domestic sphere from the masculine world of science (fiction). In-Human Women, meanwhile, were frequently used to show the dangerous effects of female

integration with advanced machines. The "danger" of In-Human Women is in sharp contrast to the masculine embrace of human-machine integration discussed in Chapters 1 and 2 and points to deep-seated patriarchal anxieties about the consequences of non-normative feminine behavior. Portrayals of gendered manufactured humans during the war often reveal anxieties about the changing definition of the human Self that were absent in narratives arguing in favor of (masculine) human-machine integration.

Published in the December 1938 issue of *Astounding Science-Fiction*, Lester del Rey's "Helen O'Loy" both embraces the role of advanced technology within the domestic sphere and argues that such devices should be under masculine control. The story itself is largely a retread of the Pygmalion myth: a young man, dissatisfied by what his world has to offer in the way of female life partners, creates a "perfect" woman who miraculously comes to life and falls in love with him. In Helen O'Loy's case, her self-awareness is not due to divine magic but to electrical circuits assembled by her creator. Nor is it the gods who teach her to love but rather popular culture via televised soap operas. Thus, Helen's identity and sense of Self are both literally and figuratively programmed by representatives of patriarchal culture. Despite being manufactured rather than born, Helen quickly finds her "natural" place in society as the loving and devoted wife of her creator, Dave. With only her circuits and television to guide her, Helen has little problem mastering the domestic arts. Although Helen does take the place of a human woman as Dave's wife, she is not motivated by a desire to replace humans but by love for her creator. This manufactured human could hardly be less threatening. According to the narrative, the only real drawback to Helen's manufactured nature is that

she does not age. But Helen still manages to adhere to social conventions by physically altering her appearance in order to grow old beside her husband, eventually committing suicide so as to join him in death.

One might expect that a story about an amazing mechanical woman might reflect the uneasiness felt by many in the face of the rapid technological and social changes that took place prior to and during the Great Depression, especially the increased mechanization of industry and labor. One reader of *Astounding Science-Fiction* even criticized the tendency of science fiction stories to feature human-like robots in the November 1938 issue of the magazine. He states "…that a manlike robot is long since old-fashioned," and further argues that "We have millions of robots that do every conceivable service for us, and the problems they have brought with them are well nigh beyond solution. I am, of course, referring to our automatic machinery and the labor displacement problem they have brought" (Dawson 160). This letter, however, is not referring to "Helen O'Loy," but rather to a pair of stories published in an earlier issue.[36] That readers did not make similar arguments about del Rey's story suggests that Helen's faithful mimicry of idealized feminine humanity undermined the disruptive potential of her manufactured nature. Helen's devotion to Dave may also have provided (male) readers with an opportunity to assert their mastery (and masculinity) over an advanced machine by proxy, thus compensating for feelings of disempowerment elsewhere. Furthermore, Helen's differences from biological humans are quickly negated by her

[36] These stories are "Robots Return" by Robot Moore Williams and "X1-2-200" by Ray Cummings, both published in the Oct. 1938 issue of *Astounding Science-Fiction*. Cumming's "X1-2-200" will be discussed later in this chapter.

(re)inscription into patriarchal society via an idealized heterosexual relationship and a conventional marriage. The story suggests that the best way to deal with challenges to (patriarchal) social structures is by ignoring them and continuing business as usual. Deviant others—be they biological, mechanical, or some combination thereof—will quickly fall into their "natural" places. Robotic wives, however, are not natural. This paradox at the heart of this attempt to maintain normative gender roles in relation to advanced technology reveals the always already slippery nature of such categorizations.

This avoidance of recognizing the socially-constructed nature of gender is further highlighted by fans' responses to "Helen O'Loy." Most of the letters published in subsequent issues of *Astounding Science-Fiction* fail to mention the story or do so only briefly, but the Analytical Laboratory lists "Helen O'Loy" as the second most popular story of the December issue (Feb. 1939 6). This, combined with the lack of letters in Brass Tacks, suggests that readers enjoyed del Rey's story but did not feel that any of its elements required further discussion. They did not, for example, link it to the discussion begun by the reader in the earlier issue about the effects of automation on industrial labor.[37] Perhaps this is because Helen is female and thus the only potential employment she threatens is the domestic labor done by women within the home. The presence of a robotic being in the domestic sphere does not seem to have been perceived as a threat in the same way as the automated machines transforming the traditionally masculine world of paid labor. The threat Helen represents is directed toward the (gendered) Other rather than the (masculine) Self, and, therefore, is perceived as less of an issue.

[37] This issue is addressed more directly by Poul Anderson's "Quixote and the Windmill," discussed in Chapter 2.

Readers who disliked the story primarily focused on its lack of scientific plausibility. One fan stated in his letter that "'Helen O'Loy' is well written, but much too farfetched. I can't conceive of a terrifically expensive robot being supplied with all those useless organs which made Helen as good as she was. These fantasies are all right when they are believable, but when they're not they fall flat" (Quill 160). This comment is especially interesting as the story itself does not offer much information about Helen's organs. It mentions that her "…plastic and rubberite face was designed for flexibility to express emotions, and she was complete with tear glands and taste buds" but most of the narrative describes Helen's actions rather than her internal workings (del Rey 3). Notably, this description from the narrative focuses on Helen's ability to convincingly simulate emotions, specifically those coded as feminine. Her tear glands allow her to cry and her taste buds enable her to be an excellent cook. For at least one reader, these elements are both "useless" and a key part of Helen's success. This highlights the contradictions which allowed readers to see women as "naturally" connected to the domestic sphere without having to acknowledge the social construction of gender norms. Furthermore, by focusing on technological believability, readers were able to avoid issues related to manufactured humans' potential disruption of gender roles.

The science fiction field is not homogenous, however, and some stories that appeared in *Astounding Science-Fiction* challenged gender norms. C.L. Moore's "No Woman Born," is notable, in part, because it was written by a female author and published under her own name. Frequently collaborating with her husband, Henry Kuttner, under a variety of joint pen names, Catherine L. Moore was also an established

author in her own right. “C.L. Moore” appears as the byline for several well-regarded series, including those featuring Jirel of Jory and Northwest Smith. Although Moore’s gender was somewhat obscured by the use of her initials rather than her full name, the science fiction community was well aware that she was female. The April 23, 1938 issue of the fanzine, *Science Fiction News Letter*, for example, refers to Moore as “she,” and, in a letter published in the April 1940 issue of *Astounding Science-Fiction*, a fan compliments “Miss Moore’s” writing style (“Notes” 1; T. Wright 162). C.L. Moore’s multi-decade career as a female science fiction writer highlights the long-standing presence of women in the science fiction community.

First published in December 1944, Moore’s “No Woman Born” focuses on Deirdre, a successful stage and screen actress, and her recovery after a devastating theater fire which nearly killed her. Prior to the fire, Deirdre’s beauty had made her famous everywhere, including “…in desert tents and polar huts. The whole world knew every smooth motion of her body and every cadence of her voice, and the way a subtle radiance had seemed to go on behind her features when she smiled” (Moore 237). To save this beloved beauty, the brilliant surgeon, Maltzer, transfers Deirdre’s brain into a new, metal body. John Harris, Deirdre’s manager and the story’s narrator, claims that his main concern is Deirdre’s mental state after her harrowing ordeal, but Harris’s actual statements focus almost entirely on his anxieties about Deirdre’s physical appearance. He notes that Deirdre’s beauty is not due to perfect features, but rather to “…the light within, shining through her charming, imperfect features…. No one else he had ever seen had anything like the magic of the lost Deirdre” (Moore 237). As an actress, her popularity

(and income) depends on her beauty, but true success on stage or on the screen requires significant talent and hard work. That Deirdre is also a dancer adds an additional set of skills to her already impressive array. Both of these disciplines depend on the ability to control one's body, oftentimes is subtle ways, so as to give an overall effect. That Harris is not worried about the actual functioning of Deirdre's new body, but rather its appearance, highlights the often absurd social fixation on women's heterosexual attractiveness above all other attributes.

This patriarchal attitude is especially noticeable when Harris's concerns about Deirdre are compared with those of the hijackers in regards to Bart Quentin in *Camouflage*, written by C.L. Moore and her husband, Henry Kuttner.[38] The (male) hijackers worry that Quentin has been enhanced by his transfer to a metal container while Harris worries that Deirdre has been reduced. These differences point to the cultural belief that men are "naturally" compatible with machines while women must struggle with human-machine integration. And while it is the brain that is rescued from the damaged body in both cases, only Deirdre is transformed into an embodied manufactured human; Quentin remains a mind. This serves to highlight the male/mind, female/body binaries that underlie the patriarchal Self challenged by "No Woman Born."

Moore's narrative soon makes it clear that what Deirdre has truly escaped are the patriarchal norms that had inscribed their desires onto her flesh. It is obvious from the moment that Harris first sees her that more than just Deirdre's body has been transformed, but he and Maltzer resist understanding the significance of this change.

[38] *Camouflage* was published under Kuttner and Moore's pen name "Lewis Padgett."

Instead, they continue to see her as a fragile creature in need of their protection and guidance. They persist in this outlook, despite her actions and their own misgivings, because the alternative clearly terrifies them. Social norms define femininity as dependent on men for guidance, for support, and for self-esteem. But if Deirdre is no longer dependent on men, then men (and by extension patriarchal society) can no longer control her. In the story's final scene, Deirdre forces the two men to face this truth by demonstrating that gender is a performance:

> She paused at the far end of her pacing path and turned to face them…. To Harris she was the Deirdre he had always known, pale gold, exquisitely graceful in remembered postures, the inner radiance of her shining through metal as brilliantly as it had ever shone through flesh…. Later he would think…that it might be only a disguise, something like a garment she had put off with her lost body, to wear again only when she chose. (Moore 279-280)

By doing so, Deirdre reveals the social constructions at the heart of naturalized gender norms. Unlike Helen O'Loy, Deirdre was her own person before Maltzer transferred her into a metal body. What has changed is her freedom from heteronormative social conventions, not her Self. Furthermore, technological developments are what enabled this transformation and the story's final scene makes it clear that this is a chilling change, at least from the masculine perspective. Maltzer and Harris (and patriarchal society) sought to manufacture the ideal woman by transferring Deirdre into a mechanical body, but what now stands before them is something they can neither control nor fully understand. Deirdre's transformation highlights the fact that men have never had full control of

machines or of women. The (masculine) Self has always been in dialectical partnership with the Other.

Until "No Woman Born" appeared in the December 1944 issue of *Astounding Science-Fiction*, Moore had not published under own her name since late-1943. The intervening months had seen a string of publications by "Lewis Padgett" and "Lawrence O'Donnell," but it is unclear how many fans were aware that Moore, along with Henry Kuttner, was behind these names. Even today, Moore and Kuttner's joint work is often attributed solely to Henry Kuttner in collections and anthologies. That the identity of an author of numerous popular and critically-acclaimed works has been so persistently obscured points to the perennial nature of the challenges faced by female members of the science fiction community. Despite the popularity of "No Woman Born,"[39] many of the narratives published in the pages of *Astounding Science-Fiction* over the course of the war followed the lead of "Helen O'Loy" in portraying women as separate from masculine-controlled science and technology.

Women as Fans

As Justine Larbalestier notes in *The Battle of the Sexes in Science Fiction*, women have been active members of the science fiction community since its beginning.[40] Although the majority of fans in the late 1930s were men, letters, articles and the creative work of female fans regularly appeared in the letter columns of professional publications and in the pages of fanzines before and during World War II. The larger masculine

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[39] "No Woman Born" placed second in the Analytical Laboratory (April 1945 178).

[40] Justine Larbalestier documents the presence of women in the letter column of Gernsback's *Amazing Stories* as early as 1928 (24).

science fiction community, however, seemed consistently surprised at the presence of women among its ranks. The fanzine, *Le Vombiteur,* for example, included semi-serious advertisements for "Women!" in several of its issues (Figure 2). In addition to implying that women's physical attributes are their most important qualities, the presence of these ads suggest that women were so rare in the science fiction community that it was necessary to take out personal ads to find them.

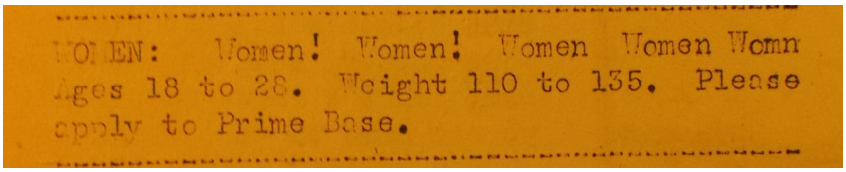
WOMEN: Women! Women! Women Women Womn
Ages 18 to 28. Weight 110 to 135. Please
apply to Prime Base.

Figure 2 Ad which appeared in the Dec. 1940 issue of *Le Vombiteur.*

The fictional ad is meant to be taken as a joke, but even serious articles about women in science fiction often minimized the presence of female fans. "The Female Element in Science Fiction," published in Moskowitz's fanzine, *Helios,* states that "Women should have a place in science-fiction---and they do, too. The niche may be small, but it's unique" (Hart 6). This perhaps could be read as an acknowledgement that women had already made a home for themselves within the science fiction community; however, the article closes by stating that "Women are forging ahead in all fields of endeavor. S-F……? Let's hope they do, there's a place for 'em" (Hart 6). This implies that a place has been prepared for, but is not yet occupied by, female fans. Furthermore, this place for women within the science fiction community must be created for women by other, presumably male, fans. Not only are the activities of current female fans ignored, women's ability to "forge ahead" without male assistance is also called into question. Ultimately, this attempt to encourage female interest in science (fiction) reinscribes

traditional gendered divisions of knowledge and reconfirms the genre as a masculine domain.

When the presence of female fans was noted by the science fiction community, it was often treated as an unusual occurrence worthy of comment. For example, *New Fandom*'s coverage of the First World Science Fiction Convention included an article by Frances Alberti. But Alberti's by-line is not simply her name, as it is for the male writers featured in *New Fandom.* It also includes the additional phrase "a new girl stfan [stf fan]" (*New Fandom* 32).[41] Based on her article and her membership in an established fan group (the Queens Science Fiction League), Alberti was probably familiar with professional and amateur science fiction publications; it is unlikely that she was a new fan of the genre. The designation "new" may have been intended to signify that Alberti was a new member of the New Fandom organization, but the editorial description makes reference only to science fiction. This has the (perhaps unintentional) effect of making her opinions about the genre and the science fiction community seem less well-informed. Furthermore, Alberti article mentions at least one other female fan at the World Science Fiction Convention, and her remarks do not give the impression that either of them were the only women in attendance. Yet, the zine's editor felt it necessary to underscore Alberti's gender when introducing her article on the convention. Much like the advertisements in *Le Vombiteur*, this implies that women are uncommon in the science fiction community. Rather than encouraging increased female participation in science fiction, such

[41] "Stf" is an abbreviation of Gernsback's original term for what is now called science fiction, "scientifiction."

designations have the reverse effect by implying that female science fiction fans are unusual even within a group that prided itself on being "different" from "normal" people.

Despite their interest in fighting oppressive social systems, the Futurians did not do much better when it came to challenging normative gender roles. John B. Michel's travelogue of his cross-country trip, published in the October 1939 issue of *The Science Fiction Fan*, notes that one of the highlights of the trip was when a "…young girl in the hotel room across the street from the YMCA in Columbus, OH,…pulled up all the shades and disrobed under a battery of lights. (Of course we looked!)" ("Aspirin" 20-21). Michel closes his narrative by noting that small American towns have "the prettiest, red-cheeked, silk-hosed agglomeration of oomph in sixty-three degrees of longitude. The beautiful shafts in the world are not the Trylon, the Eiffel Tower or the Empire State building, but the legs of the average American girl" ("Aspirin" 22). As the author is a heterosexual young man, it is not surprising that he noticed attractive members of the opposite sex. It is worth noting that the author of this travelogue is also the one who lent his name to the Futurians' political movement: Michelism. The ostensible goal of Michelism was to use the power of science fiction to imagine different, more equitable social systems. That Michel fails to see how the objectification of women's bodies contributes to (gender) inequality highlights how even progressive members of the science fiction community often neglected feminist issues. Furthermore, the inclusion of these statements in a popular fanzine implies that both the author and the fanzine's editor thought they would be of interest to (male) readers. In addition to reinforcing assumptions that science fiction

fans were invariably male, such articles served to further reinforce the separation between masculine science (fiction) and women.

The perception of women as a distinct group largely outside of science (fiction) can be found throughout fan publications. In his description of the attendees of the First World Science Fiction Convention, Donald A. Wollheim refers to "fans, writers, editors, their wives…" (3). Here, women are not only separate from "fans, writers, and editors," they are also defined solely by their marital status. Their presence at the convention is also assumed to be only in support of their husbands' interest in the genre rather than the result of their own. It is worth noting that the Futurians had several female members among their ranks, many of whom had joined the organization independently, not as part of a heterosexual couple. The presence of several female members in the group suggests an openness to the participation of women in science (fiction), but this openness does not seem to have extended to an interest in feminist issues. Despite their progressive political attitudes, the Futurians remained largely silent on issues relating to gender equality. As a leader of the Futurians, Wollheim's reduction of female convention goers to "wives" rather than "fans, writers, and editors" suggests that the Futurians' awareness of women's roles in science (fiction) was intermittent. That this blindness to women's participation in the science fiction community appears in both New Fandom and Futurian publications underscores the widespread nature of this attitude in the community.

The lack of awareness of female fans helped to justify the male-centric nature of many science fiction publications, especially at the fan level. For example, the September

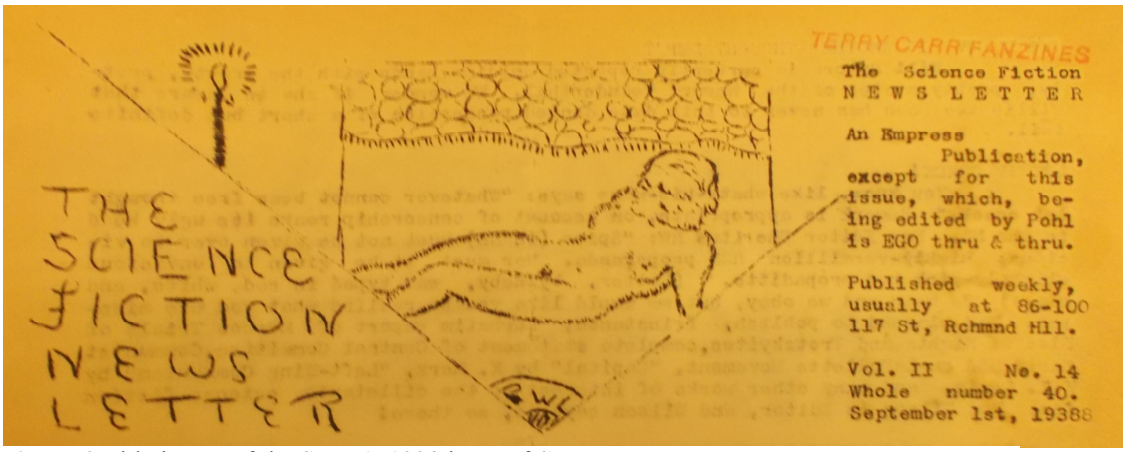

Figure 3 Title image of the Sept. 1, 1938 issue of *Science Fiction News Letter*.

1, 1938 issue of the fanzine, *Science Fiction News Letter*, featured an illustration of a naked, faceless female figure alongside the zine's title. The next issue offers an apology of sorts. Under the heading, "No Nudes is Good Nudes," the editor writes "Last issue's letterhead was drawn by Robert W. Lowndes. We knew absolutely nothing about it till we saw it run off. You go and blame Lowndes, see?" ("No Nudes" 1).[42] No reader letters objecting to the illustration were published in the zine, so it is not clear what may have provoked the editor's response. But in addition to avoiding taking responsibility for the illustration, the editor's tone does not indicate that he sees the issue as a serious one. The illustration and the dismissive editorial response imply that women exist outside the masculine discourse of science (fiction). They are not subjects able to participate in such domains but rather faceless objects of the disembodied male gaze.

[42] *Science Fiction News Letter* was primarily the production of Richard Wilson, Jr., but both the September 1 and September 7, 1938 issues were guest edited by Frederik Pohl.

This characterization of women was common in *Science Fiction News Letter*. A news bulletin in the September 17, 1938 issue, for example, alerts readers to a science fiction themed burlesque show. The "Flashes from Everywhere" column a few months later notes that "Marvel Science Stories will probably return to the 1st policy of 'spicy' stf…. We may see nudes on stf covers yet…" ("To Press" 1; "Flashes" 2).[43] Given *Science Fiction News Letter*'s history in regards to nudes, the author is likely hoping for female rather than male nudes, an attitude which readers are presumably expected to share. *Science Fiction News Letter* was largely the product of a single individual (and a few close friends), so it not surprising that it expresses a consistent attitude in regards to (naked) women. But the assumption of an exclusively male, heterosexual readership was widely held by the science fiction community.

This attitude appeared even in non-fiction articles in fan publications. "Famous Characters of Science Fiction," in the July 1939 issue of *New Fandom*, lists five character archetypes in science fiction: Heroes, Villains, Scientist-Adventurers, Adventures, and "Girls! Girls!" (emphasis in original, Gardner 12) Although the article notes that there are female characters who are heroes, they are still placed in a separate category from male heroes, scientists, and adventurers. They are further marked as being the only category not described by their active role within a narrative but by their gender; they are not "scientists" or "adventures" but rather gendered bodies designed to appeal to (male) readers. This implies that women's usual role in science fiction is not as protagonists but as Others. This perception of female characters is further underscored by the author's

[43] The April 22, 1939 issue of *Science Fiction News Letter*, which featured "Flashes from Everywhere," was guest edited by Robert Lowndes.

description of Conan the Barbarian as "…the answer to every man's dream--- a chance to loot cities, empires, and plenty of beautiful girls as part of the booty" (Gardner 12). Women, it seems, are not only different from heroes, they are part of the spoils of war along with gold and jewels.

Although the negative effects of such articles may have been unintentional, there were also fans who flatly stated that women did not belong in science (fiction). In a letter published in the July 1938 issue of *Astounding Science-Fiction*, long-time reader Donald G. Turnbull states that he can no longer continue his subscription because "…females have been dragged into the narratives and as a result the stories have become those of love which have no place in science-fiction" (162).[44] Although his main objection is to romantic subplots, Turnbull further states that "A woman's place is not in anything scientific" (162). Turnbull continues his critique of the recent fiction published in *Astounding Science-Fiction* by arguing that "I [Turnbull] believe, and I think many others are with me, that sentimentality and sex should be disregarded in scientific stories. Yours for more science and less females" (162). Female characters, and presumably women in general, are thus reduced to sexual signifiers who have no legitimate connection with science (fiction). Their only conceivable role, both in fiction and in the real world, is as romantic interests of a man. Turnbull's letter was likely published by Campbell in hopes that it would start a lively debate in Brass Tacks. Although some readers would eventually weigh in on the subject, the conflation of women, gender, and sex remained largely unchallenged.

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[44] The debate sparked by Turnbull's letter is also analyzed by Justine Larbalestier in *The Battle of the Sexes in Science Fiction*.

When Isaac Asimov entered the debate a few months later, he argued that "When we want science-fiction, we don't want swooning dames," implying that women serve little narrative function beyond being the helpless half of a heterosexual pair who contrast with the manliness of the hero (Sept. 1938 161). The first to respond at length to Asimov was Mary Byers. She notes that Asimov "…has made the grave error of confusing the feminine interest with the sex theme" (Byers 160). Her letter, which is substantially longer than Asimov's terse paragraph, argues that:

> Undoubtedly it has never occurred to him [Asimov] to wonder whether the girl fans like the incredible adventures of an almost-ridiculous hero any better than he likes the impossible romance of an equally impossible heroine….
>
> To his plea for less hooey I give my whole-hearted support, but less hooey does *not* mean less women; it means a difference in the way they are introduced into the story and the part they play. (emphasis in original, Byers 160)

Byers's response not only notes the existence of female fans, it also points out that the presence of female characters does not necessarily mean sex and romance. Her last sentence further suggests that the problem is not women but how they are written. The true problem, then, is not women in science (fiction) but rather cultural assumptions about "normal" feminine behavior which do not see women as active agents but rather as passive victims. Byers's letter, however, unintentionally reinforces the perception that (feminine) emotions should be separated from science and technology. Thus, even as Byers attempts to challenge the exclusion of women from science (fiction), her comments

reveal how deeply entrenched such perceptions were in the science fiction community during this period.

Asimov's next letter acknowledges the validity of some of Beyer's points—specifically that part of the problem is how women are written rather than how women actually are—but he then argues "that many top-notch, grade-A, wonderful, marvelous, etc., etc., authors get along swell without any women at all" and that writers unable to write well-rounded female characters should be allowed to practice their craft without alteration or criticism (Feb. 1939 160). It is worth noting that Asimov's definition of a "top-notch, grade-A authors" seems not to include the ability to convincingly portray human beings in all of their many shapes, sizes, and genders. In this formulation, "human" means "white, middle-class, heterosexual male" and the experiences of other(ed) bodies in fiction, and in the real world, are effectively erased from portrayals of scientific and technological possibility.

Even when male members of the science fiction community were not overtly hostile to attempts to challenge how the community talked about gender, they were dismissive of them. David McIlwain, whose letter supports Turnbull's and Asimov's arguments, suggests that *Astounding Science-Fiction*'s "…male readers greatly outnumber your female fans, so why not cut out the age-old love idea…" (158). This not only ignores the problematic ways in which women were portrayed in science fiction but also assumes that love and romance are exclusively feminine domains. It suggests that female characters can only serve romantic narrative functions and female readers are uninterested in science (fiction). Thus, even as McIlwain acknowledges the presence of

female science fiction fans, he reinforces the idea that there are (naturally) very few of them.

As readers on both side of the issue noted the problematic ways in which many female characters were portrayed in science fiction, Campbell remained largely silent on the subject. As Mike Ashley notes in *The Time Machines: The Story of the Science-Fiction Pulp Magazines from the Beginning to 1950*, Campbell's larger goal as editor was to foster higher quality science fiction; one might expect that Campbell would encourage writers to depict a wide range of complex human characters. However, the editorial comment for Turnbull's original letter is "Misogynist! Bet you hear from Miss Evans!" (*Astounding* July 1938 162). Not from male readers, writers, or even the editorial staff of *Astounding Science-Fiction,* but from a lone female fan. These editorial comments were often written in a humorous tone, which suggests that even the misogynist label was meant in jest. Aside from the letters discussed above, the science fiction community was largely silent on the issue, suggesting that many of its members had little problem seeing women as unrelated to science (fiction).

Professors' Daughters

Attempts to separate women and science (fiction) can be found throughout the professional science fiction published in *Astounding Science-Fiction* during the early 1940s. Female characters were often portrayed as either "Professors' Daughters" or as "In-Human Women." The first type often represented an idealized femininity. Professors' Daughters are pretty, dutiful, and usually possess information and/or helpful skills that enable the male hero to save the day. Notably, Professors' Daughters are not professors

themselves but rather part of a (male) professor's household. Their filial relationships to the various professors subordinates them to patriarchal science. This positions women as distinctly separate from science and technology and works to naturalize masculine dominance of those fields.

The portrayal of the professor's daughter who appears in Willy Ley's *Orbit XXIII-H* makes it clear that women have no place in scientific concerns. As I discussed in Chapter 1, *Orbit XXIII-H* follows the Space Guard as they try to regain control of a new rocket technology. They first learn that the technology has been stolen, and its inventor has been kidnapped, when they find the inventor's daughter, Gwendolyn Le Marr, sealed in a container and left on the lunar surface. This professor's daughter enters the narrative while unconscious and her physical appearance is discussed by her rescuers before she is even removed from the container holding her: "'If she were more scantily dressed that would make a nice story,' said Boerhave [a Space Guard] with utter disregard for the dignity of the Space Guard organization. 'But she is by no means scantily dressed. On top of a dress she might wear on a day in April in New York, she is wearing a fairly heavy space-suit'" (Ley 21). Although the narrative voice does note that such remarks are not proper for a respectable member of the Space Guard, that same narrative voice also pauses to note Gwendolyn Le Marr's physical attractiveness: "They pulled her out of the space-suit. She was quite young, very good looking and certainly alive, although unconscious" (Ley 21). Even at the narrative level, the young woman's heterosexual appeal takes precedence over her health. Furthermore, because she is unconscious, she is unable even to identify herself or describe what has happened to her. Her identity is

determined by one of the male scientists working with the Space Guard, and so she is quite literally named by a masculine representative of both government and of science.

Gwendolyn Le Marr is eventually revived but is unable to relate the events that led to her discovery by the Space Guard without dissolving into hysterics. Rather than eliciting sympathy from the reader, her emotional state quickly becomes an annoyance as it hampers the Space Guards' investigation of her father's disappearance. Nor are her demands that the Space Guard immediately takes steps to rescue her father seen as a desire for action. Instead, they are framed as the unrealistic demands of a foolish child who is unwilling, or unable, to understand the true nature of the situation. As a whole, Gwendolyn Le Marr's personality and behavior serve to highlight the calm efficiency of the male Space Guards. It is quite clear that she is not, nor could she ever be, their equal.

The narrative's emphasis of Gwendolyn Le Marr's physical attractiveness and uselessness effectively suggests that, while women may be physically lovely, they are best left out of serious matters. This characterization is further supported by the Space Guards' use of an elaborate subterfuge to leave Gwendolyn Le Marr behind on Earth when the rescue operation for her father is finally mounted. Their deceit is justified because "'…we [the Space Guards] simply have no use for dead weight on this trip. Besides, she'd probably die of heart failure if things do not progress as smoothly as they do in the movies'" (Ley 38). Despite repeated attempts to explain the situation to her, Gwendolyn Le Marr has been unable to grasp its true nature and instead bases her expectations on fictional narratives instead of scientific facts. This implies that women are unable to understand the significance of events, especially scientific ones, and can

only make unreasonable demands of those who do understand. Gwendolyn Le Marr's role in the narrative is largely as a plot device. She is absent from technical discussions and her presence is unnecessary for the final battle on Titan. This suggests that the domains of exploration, science, and military strategy belong to men.

Even when Professors' Daughters feature more prominently in science fiction narratives, they are clearly subordinated to masculine science and technology. Published in the same issue as *Orbit XXIII-H*, Ray Cummings's "X1-2-200" opens with a full-body drawing of a frightened woman in a state of undress. It is not clear until later who the half-undressed woman is or that the robot is actually saving her, not menacing her.

Figure 4 Title illustration by Hans Wesso for "X1-2-200" which appeared in the Sept. 1938 issue of *Astounding Science-Fiction* (58-59).

Thus, from the beginning, "X1-2-200" ambiguously links self-aware technology, femininity, sexuality, and danger. The text quickly reveals that the titular X1-2-200 is a robotic assistant to the head of Dyne Robot Factories. Due to a bitter divorce, Dyne avoids all women, even going so far as to ban them from the research facility where he works and lives. Thus, X1-2-200 has never seen a human woman until Dyne's estranged daughter, Vera, arrives to visit her father. Just hearing Vera's voice causes the robot to

feel "…within him a strange responsive reaction that he could not interpret. It was confusing" (Cummings 61). The robot quickly becomes fascinated by Vera and the strange sensations caused by her presence.

Unlike her voice, which simply caused a "strange reaction," Vera's actual physical presence has a much stronger effect on the robot:

> It frightened him to realize that there was so much of human knowledge—so many things of human life—that had never been taught him. And suddenly he was aware that he wanted to know these things. It was as though within him a million tiny electronic cells were empty, and were tingling to be filled with knowledge that belonged to them. (Cummings 63)

Although not explicitly stated, it is easy to conclude that the "tingling" X1-2-200 feels is a kind of sexual arousal. As a robot, he presumably has no sexuality, yet his reactions are both clearly physical and specifically masculine. His strong physical attraction towards Vera is unconscious, thus implying that that his feelings are normal parts of being male. The robot's clear masculinity further suggests that technology is "naturally" a masculine domain. Women, however, have been banned from the scientific compound where the robot has spent most of his life. That this is passed over quickly by the narrative suggests that this state of affairs is not unusual. Although female scientists were greatly outnumbered by their male colleagues during this period, women were an established presence in science and were working in a variety of scientific fields. The narrative's easy removal of women from Dyne Robot Factories effectively erases such women from the realm of scientific inquiry.

"X1-2-200" continues to explore the robot's masculine fascination with Vera, specifically the robot's reactions to the sight of her gendered body. When she leaves the room, for example:

> it was as though a warming radiance had flickered and died so that a chill vibrated along his [X1-2-200's] nerve-wires. That was queer. Was he learning a new type of thinking? He stood inert, but the strangeness within him seemed pulsing with a myriad vibrations that he had never felt before. Perhaps he was learning the thing called Reason? Whatever it was, he was aware that he was stirred now by reactions he had never had before. As though during all his existence he had been in something like what the humans called Sleep; and now he was Awakening. (Cummings 64)

The robot's sexual awakening is thus tied to a desire for knowledge, suggesting that the feminine (body) exists only as source of knowledge for the masculine mind. And by linking the explicitly masculine gaze of the robot and his naturalized physical reactions to Vera's bodily presence, the narrative draws a contrast, not between machine and human, but rather between masculine and feminine. Much like "virgin" territory that must "conquered" by (masculine) explorers, Vera's feminine body becomes an object against which X1-2-200 can establish his masculinity by understanding it and thus mastering it (and by extension her). Vera is thus aligned with the machine-other side of the binary, not with the human-self side. Furthermore, it is not Vera herself who is important to the narrative but rather what her body represents in the human-machine, self-other paradigm.

Vera is simply a narrative tool, the sight of which has made X1-2-200 conscious of himself as a Self.

X1-2-200 further demonstrates his selfhood by rescuing Vera when her boyfriend attempts to force himself on her. To do so, X1-2-200 makes a conscious decision to disobey the law prohibiting robots from harming humans, thereby proving his ability to think critically about a situation rather than blindly following preprogrammed edicts. His final act is one of self-annihilation which reinforces the idea that X1-2-200 is, in fact, a Self and not a machine. He is not a malfunctioning piece of equipment, but rather a thinking, reasoning Self. Nor is he discarded as a tool might be, but instead deliberately chooses to end his existence. Vera, meanwhile, remains an object of the masculine gaze, first that of the reader and then that of the masculine robotic Self. To readers, this suggests that women are simply means to an end rather than actual Selves in their own right.

Published the following month in *Astounding Science-Fiction*, "Orestes Revolts" also features a professor's daughter, Hazel Fothergill.[45] Although she is not a central figure of the narrative, Hazel is a much more fully realized character than either Vera or Gwendolyn Le Marr. Her father's obsession with various mechanical devices often causes him to neglect important matters. Doc Fothergill's eccentricities mean that it is likely Hazel who manages the household affairs, a task she excels at performing. As an adult, female member of the household, she "naturally" takes care of the home and maintains the domestic sphere. Her capabilities, however, are limited to domestic

[45] "Orestes Revolts" is also discussed in Chapter 1.

concerns. Now retired, Dr. Fothergill lives off his savings and it appears that Hazel does as well. There is thus no need for her to pursue a career of her own and so she is effectively excluded from the public sphere of paid employment. And although Hazel is intelligent, this quality is manifested mainly in terms of intuition. While Ian sees Orestes as a nuisance and Dr. Fothergill sees him as a revolutionary invention, Hazel is the only one to identify the robot as a possible threat: "'…it's a monster…for it has no soul. Father, I don't like it. You remember yesterday during the lighting storm how it growled and muttered and finally wrecked some of your apparatus'" (Binder 52-53). Although she does point to specific threatening actions, her first objection to Orestes is that he has no soul and it is that lack, not his actions, which makes him a monster in Hazel's eyes. Her suspicions are eventually validated, but a soul is not something that can be tested or measured and thus her primary objection is based on non-scientific (and implicitly less reliable) grounds.

Hazel is also unable to do anything about the threat Orestes poses; Ian's intercession is necessary to actually solve the problem. In fact, Hazel is in another part of the house when Orestes attacks the two men and does not arrive on the scene until after the robot has been defeated. Her absence during the final confrontation with the mad robot suggests that she is ultimately inessential to the narrative. Although given more of a voice than Vera and Gwendolyn Le Marr, Hazel's role in "Orestes Revolts" is still primarily as a plot device. As Ian's romantic interest, she provides a reason for him to frequently visit the Fothergill home and thus encounter the doctor's inventions. Hazel can also be read as the "ideal" young lady: pretty, smart, and capable but still in need of a

strong, masculine guiding presence. Her intelligence and capabilities deal primarily with traditional feminine concerns, leaving masculine areas of control unchallenged. Thus, even when a female character is more included in a science fiction narrative, she is still separated from technology and contained in the domestic sphere. These characters are not active participants but rather objects which the male hero encounters as he works toward his goals. Narratives featuring Professors' Daughters illustrate contemporary ideals of "acceptable" feminine behavior and help to solidify the division between women and masculine science (fiction).

In-Human Women

Although Professors' Daughters remained a familiar archetype in science fiction, as the war progressed female characters were increasingly portrayed as In-Human Women. These characters often represented the modern, "independent" woman who failed to conform to traditional gender norms. The In-Human Women who appeared in *Astounding Science-Fiction* during this period reveal how the science fiction community often tried to deny the effects of changing gender roles on understandings of the (human) Self. Sometimes these characters were redeemed, especially when incorporated into a heterosexual relationship with a strong male character. For those who remained outside the heteronormative binary, their lack of normative feminine characteristics was often translated onto their humanity. Co-opting male abilities and attributes did not make a woman more masculine, and therefore more of an independent Self, but rather made her less human. Unlike Professors' Daughters, who had a clear place in a patriarchal scientific household, In-Human Women's attempts to become active agents, and

professors themselves, were characterized as fundamentally unnatural. As increasing numbers of women moved into traditionally male-dominated industries over the course of the war, this re-coding of gendered characteristics as those of the human species can be read as an attempt to maintain traditional norms that saw "male" as the default human gender and "female" as belonging to Othered bodies. That this process had to be continually repeated points both to patriarchal anxieties about enforcing traditional definitions of gender as well as to gender's inherent mutability.

The futuristic society described by Robert A. Heinlein in *Beyond This Horizon* can be read as an idealized society based on scientific principles.[46] Initially, the editorial apparatus surrounding the serialized novel seems to call attention to the social, rather than biological, construction of gender norms. *Astounding Science-Fiction*'s Table of Contents teaser for the first part of *Beyond This Horizon* reads "A thoroughly unusual tale…[set] in a world where men paint their fingernails, have elegant manners—or get shot down offhand!" (April 1942 2). The Table of Contents for the second installment describes the novel as set in "…a world where bejeweled and lace-trimmed men with scented and painted nails were hard, lighting-fast gunmen at the slightest insult" (*Astounding* May 1942 2). By pairing "masculine" and "feminine" characteristics, these teasers call into question the social division of gender and the naturalized cultural assumptions supporting such a division. This is undermined, however, by the descriptions' assertions that these future men are still able to defend their "honor" as well as the repeated references to specifically men's fighting abilities. These men may appear to be different from men in

[46] *Beyond This Horizon* is also discussed in Chapter 1.

the 1940s, but those differences are only superficial. The "essence" of masculinity—speed, strength, toughness, fighting prowess—remains unchanged.

The novel itself explores society's complex attitudes towards increasingly independent women. Longcourt Phyllis, Hamilton Felix's intended mate, is similar to Felix in almost every way. She is a member of a star line, intelligent, capable, physically attractive, and independent. The one differentiating characteristic, and one the narrative repeatedly stresses, is her gender. In many ways, her gender is her most important quality. Before she physically appears in the narrative—before she is even given a name—Felix is shown a video of her by the geneticist trying to pair them: "Before them lay a garden swimming pool, its surface freshly agitated…. The swimmer took three easy strokes toward the pick-up [the camera], and climbed out on the bank with effortless graceful strength. She rolled to her knees, stood up bare and lovely" (Heinlein 34). It is not clear if Phyllis is aware that she is being recorded, but regardless, the narrative clearly places Felix and his companion in control of the technological gaze. Furthermore, the two men are fully clothed, in an office, discussing (scientific) business while Phyllis's naked, gendered body is used to entice Felix into sexually desiring her.

When Felix demurs, his geneticist companion is quick to point out that it is not necessary for Felix and Phyllis to even meet, much less physically interact, for their genetic heritage to passed on to their offspring. The men's discussion, which slides easily from observing the naked female form to a clinical discussion of human reproduction, reveals how easily scientific discourse can divorce reproduction from gendered bodies. It is also worth noting that in this future society, women must still carry a child to term and

give birth "naturally." The two men are effectively deciding for the woman if she will become pregnant and endure the attendant physical and emotional risks. Felix's contribution will be minimal, and he will have no further responsibilities. Meanwhile, Phyllis's wishes are not discussed and seem almost irrelevant.

Phyllis's own actions and attitude, however, initially seem to challenge normative gender roles. Although Felix has been assured that he need never meet the potential mother of his child, she has other plans. Phyllis arrives at his home unannounced, stating "'I thought it was about time I looked you over'" (Heinlein 54). It quickly becomes clear that she feels that she has just as much of a say in the matter as Felix does. If she is to become pregnant, it will be on her terms and with a man of her choosing. Phyllis's attitude seems to challenge the exclusion of women from the earlier masculine discussion of the fate of the female body.

Phyllis's non-normative nature is further highlighted by her decision to present herself as an armed citizen. The future society of *Beyond This Horizon* is structured by a complicated system of honor similar to the idealized version popular in the pre-Civil War South. People who wish to be treated as citizens wear visible firearms in public with the understanding that they can be called upon to uphold their honor by proving their competence with weapons in a duel. There are, of course, elaborate codes of conduct by which one can avoid giving offense, and thereby provoking a challenge, as well as ways for individuals to opt-out entirely. For men to do so is seen as a critical flaw in one's masculinity, and so most men are armed and prepared for a duel at all times. Women, however, are automatically placed among the non-combatants. But as Phyllis notes, this

kind of chivalry comes at a price for women: "'Is there anything wrong with a woman preferring the dignity of an armed citizen?'" (Heinlein 54). This rhetorical question suggests that there are two kinds of people in the world of the novel: those able to prove their Selfhood through armed combat and those who are not.

Notably, these distinctions conform to patriarchal gender norms. This kind of benevolent sexism assumes that women are incapable of being men's true equals, and thus they are always already excluded from any attempt to prove otherwise. While men may choose to opt out of the system of honorable duels, women are automatically second-class citizens because of their gender. Although not always true on an individual level, higher levels of testosterone in men cause them to have greater muscle mass than women do, giving them an advantage over women in feats of strength. But the use of firearms makes this advantage irrelevant. Strength is worth very little in a pistol duel. Agility, dexterity, and reaction speed are the most important factors, and in these areas women are as likely to excel as men. Thus, there is no reason why women as a group should be excluded from a system of honor based on skill with firearms. Yet, this is clearly the case in the society of *Beyond This Horizon.* By restricting the ability of women to use a technological device, a firearm, from leveling the playing field against male opponents, the novel also suggests that women and technology should not be combined.

Phyllis's decision to present herself as an armed citizen seemingly challenges her society's gendered divisions, but the narrative quickly recoups this deviant behavior and brings Phyllis into line with dominate values. Almost as soon as Phyllis's status as an

armed citizen is introduced, it is challenged. Confronted by Phyllis, Felix angrily responds:

> "I know your type. You're one of these 'independent' women, anxious to claim all the privileges of men but none of the responsibilities. I can just see you, swaggering around town with that damned little spit gun at your side, demanding all the rights of an armed citizen, picking fights in the serene knowledge that no brave will call your bluff. Arrgh! You make me sick." (Heinlein 54)

Phyllis's non-normative behavior does not just upset Felix mentally; it makes him physically ill. Furthermore, he is not "sick" because of the challenge she represents to society's gender roles, but rather because he is disgusted by what he sees as her hypocrisy. Her attempt to claim equal status for herself is thus painted as selfish and irresponsible. She is not Felix's equal but rather a spoiled child who has decided that rules only apply to other people and not to herself. The inherent inequality of those rules is not called into question, and Phyllis's attempt to challenge them is seen as a kind of cheating. Dominate groups have frequently reframed demands for equal treatment as demands for special privileges as a way to leave the status quo unchanged. *Beyond This Horizon* goes one step further by allowing the two participants to determine their relative combat abilities, and thus their relative worth as individuals.

After Phyllis (accurately) points out that Felix's statement is rude, she demands that they resolve their differences with a non-fatal duel.

> He [Felix] eased back a step, as if to parley. She [Phyllis] relaxed a trifle, and removed her fist from the grip of the weapon.

> He lunged forward, low, tackling her around the knees. They rolled on the floor, tussled briefly. (Heinlein 55)

It is worth noting that Felix had not formally accepted Phyllis's challenge and her response to his initial subterfuge indicates that he had violated social custom by feigning an overture of peace before attacking her. Unlike Phyllis's "cheating," however, Felix's actions are framed as strategic. This further reinforces gendered divisions of expertise by implying that men "naturally" have more logical minds that are able to see several steps ahead while women focus only on the here and now.

Felix's actions have the additional effect of making the conflict a physical one, an area in which a woman is less likely to be able to defeat a male opponent. Felix notes this fact after he has subdued Phyllis: "'Be reasonable. If you look closely you [Phyllis] will see that I [Felix] am nearly forty kilos heavier than you are, and a lot taller. You are tough and strong—I've got to hand it to you—but I'm a hell of a sight stronger and tougher. What you want doesn't matter'" (Heinlein 55). Felix's physical advantage is thus naturalized. His body can quite literally dominate hers; therefore, he is "naturally" superior to her as a citizen. Their physical differences are used as justification for his bodily control of her, and, by extension, masculine control of feminine bodies. This point is further underscored when Felix demands that Phyllis kiss him after he subdues her. Thus, he does not just defeat her, he forcibly reminds her of her place in the heterosexual matrix. Phyllis enjoys the kiss and the two are soon a couple. This suggests to readers that all seemingly independent women really want is a strong man to control them. Although the narrative argues that Felix falls in love with Phyllis because she is strong and

independent like himself, his interest in her only begins after their confrontation which enables him to demonstrate his (physical) mastery of her. As I discussed in Chapter 1, *Beyond This Horizon* espouses a scientific method of social management for the improvement of the human species. The novel's naturalization of gender norms makes them seem inevitable and implies that objecting to them is illogical and, ultimately, unscientific.

Beyond This Horizon also reflects the ways in which women's employment was understood during World War II. Phyllis works full-time as a practical psycho-pediatrician, unlike Felix who merely dabbles in a variety of fields. There are not many details about the education system of Heinlein's future society, but for readers in 1942, a medical degree would carry connotations of intelligence, skill, and extensive education. That Phyllis has both a medical degree and is successfully employed as a doctor demonstrates that women can be as intelligent and as scientifically capable as their male counterparts.

Social historian Annegret S. Ogden notes in *The Great American Housewife: From Helpmate to Wage Earner, 1776-1986* that many seemingly progressive conceptions of women's abilities and social roles still conformed to existing patriarchal values. In the later decades of the nineteenth century and into the twentieth, women were characterized as "naturally" good with children and thus their "natural" role was as mothers. This shifted, however, to a model of scientific motherhood and household

management in the years preceding World War II.[47] Being an excellent mother now required skill and training. Although nominally privileging the important role of mothers in children's welfare, the emphasis on domestic expertise did not actually redefine women's social roles. In the case of *Beyond This Horizon*, Phyllis may have a medical degree and work in the public sphere, but her employment still ties her to women's "natural" role as caretakers of children. Furthermore, after she has children with Felix, Phyllis leaves her job and happily becomes a full-time mother. This underscores the idea that paid employment is only temporary for women. Their place, ultimately, is in the home. That this occurs even in a society with advanced science and technology suggests that, despite the socio-political effects of such developments, gender norms will remain unchanged. The implication is that gender norms are natural rather than socially produced.

In addition to reinforcing gendered divisions of labor, Heinlein's portrayal of Phyllis also reflects widespread perceptions of female war-time workers. In *Creating Rosie the Riveter: Class, Gender, and Propaganda During World War II*, Maureen Honey notes:

> The image of women and war workers that developed during the war years was shaped also by propaganda campaigns on the home front, which were framed by the inaccurate belief that housewives without much work experience would make up the bulk of new workers and naturally leave their jobs once things returned to

[47] Because this shift was a gradual one which involved a variety of social forces, it is difficult to give it precise dates. Ogden's chapter on the topic, "From Scientist to Consumer," covers the period from 1900 to 1950.

> normal. This belief dovetailed with other plans to foster home-front productivity to produce a misleading portrait of women [war workers]…and to limit the impact of women's new roles on traditional conceptions about woman's place. (28)

Such propaganda campaigns were not necessarily the product of misogynistic government bureaucrats bent on oppressing women but rather a reflection of the power of naturalized gender roles to shape perceptions. Despite substantial evidence that the majority of women war workers had been employed prior to the war, many (male) leaders in government and industry continued to believe "…that they [women war workers] were young, white, and middle-class" with little prior employment experience (Honey 19). The portrayal of Phyllis in *Beyond This Horizon* highlights this cognitive dissonance. Although ostensibly an independent, career-oriented woman, once taken in hand by a strong man, she happily settles into her normative social role.

van Vogt's 1945 novella, *The Purpose*, explores the (negative) consequences of female union with advanced science and technology. Although the term "cyborg" would not be coined until 1960, it is the perhaps the most accurate description of Virginia Mention, the heroine of the novella. A reporter, Virginia is murdered after her investigation begins to threaten a politically and technologically powerful group. After her murder, several of Virginia's organs are replaced by

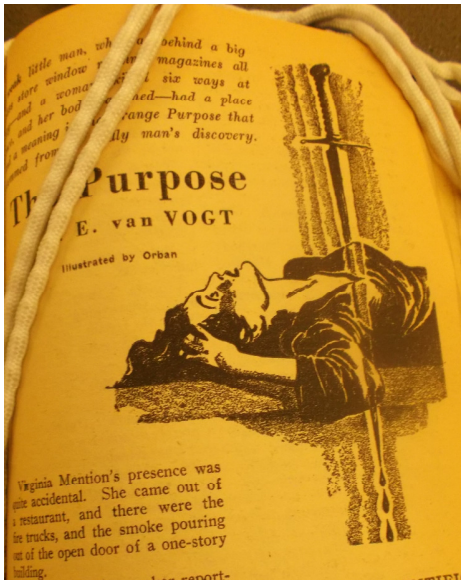

Figure 5 Title page illustration by Paul Orban for *The Purpose* which appeared in the May 1945 issue of *Astounding Science-Fiction* (139).

advanced mechanical duplicates, making her literally in-human. The murder, and the damage to her original organs, is done by an operative wielding a long, thin knife and the theme of forceful penetration runs throughout the narrative. The novella's title image, for example, shows a women being violently stabbed by a pointed blade. The appearance of this image prior to the actual text shapes readers' subsequent understanding of the character. As one of the first things revealed about Virginia is her profession as a reporter, the image further implies that such a fate is what awaits professional women, especially ones who ask too many questions about the status quo. Once her bodily integrity has been violated, Virginia can no longer be trusted to take the morally correct action (i.e. destroying a group bent on world domination). She is now "fallen" and has lost her claim to authentic humanity. That this occurs through her intimate, although unwanted, relationship with futuristic technology suggests that women and technology should not be combined.

It is possible to read *The Purpose* as an attempt to impose old values onto a new techno-social system. Smart, accomplished women like Virginia may move into the professional sphere, but their identities will remain firmly rooted in the domestic sphere. Virginia's husband, Richard Mention, first realizes that something has happened to his wife when he discovers that several domestic tasks have not been done. This not only ties Virginia's identity to the home, it also implies that their opponents are a threat to the patriarchal order represented by the Mentions' marriage. Despite social changes moving women into positions of paid employment, the narrative suggests that men will not be expected to take on traditionally feminine roles. Although women may enter the public

sphere, men will not need to face being "downgraded" to caring for the domestic sphere as a result. Furthermore, the plot of the novel is essentially one in which the skilled, intelligent male hero (Richard) rescues the damsel in distress (Virginia) because she is unable to do so herself. This suggests that even in the brave new world brought about by advanced science and technology, social norms will remain largely unchanged. This points to the fact that even when the science fiction community embraced new scientific and technological developments, they still resisted acknowledging changing gender norms.

The Sandra Drake series, written by Wesley Long,[48] attempts to warn readers about the dangers of "independent" woman who have access to advanced technologies. The first Sandra Drake story, *The Circle of Confusion*, appeared in the March 1944 issue of *Astounding Science-Fiction* with a title page announcement that "A new author introduces something new in central heating—for a frozen planet. Fine system—till a girl with an inferiority complex and a fast ship scored a bull's-eye on the Circle of Confusion [the planet's orbital heating system]" (45). Thus, before readers are introduced to Drake, and even before they know her name, they are made aware of her flaws. Like Virginia Mention in *The Purpose*, this portrayal of Sandra Drake suggests that women and technology make a poor pairing. Unlike, Virginia Mention, whose intimate relationship with technology simply made her untrustworthy, Sandra Drake's behavior actively endangers people. *Circle of Confusion* is set on Pluto which, thanks to orbital lenses

[48] "Wesley Long" is the pen name of George O. Smith, who published fiction under a variety of names in addition to his own. Because the Sandra Drake stories were all published under the Long name, I have chosen to retain it here.

magnifying the sun's rays, is now a habitable paradise. The lenses' focusing system is extremely delicate, and ships must be careful in their approaches to the planet lest they damage the mechanism or themselves. Drake, however, refuses to believe that this is the case and instead takes the most direct approach to Pluto.

In response to being informed of the catastrophe she has caused, Drake's first line of dialog in the narrative is to announce: "'I'm Sandra Drake,' [she]…said with a world of impertinence. 'No man is going tell me where I can't go!'" (Long *Circle* 54). Although Drake may feel that she is demonstrating her independence from official, patriarchal control, the narrative makes it clear that she is engaging in reckless behavior that has damaged delicate machinery, injured many of the workers who maintain it, and endangered the lives of millions of people. She is further characterized as a "'…fool dame…'" and "'…a headstrong female'" (Long *Circle* 47; 54). Unlike masculine heroes, whose missteps during the course of adventure are taken in stride, the bulk of *The Circle of Confusion* is spent detailing how much trouble Drake's (independent) actions have caused. This implies that when men go adventuring, occasional accidents may occur, but everything will turn out all right by the end. Adventurous women with spaceships, however, are disasters waiting to happen.

The Circle of Confusion also attempts to naturalize traditional gender norms by comparing the wife of one of the orbital lens engineers, Enid McBride, with Sandra Drake. The narrative makes their differences clear, noting that "Enid McBride…was not the four-alarm, all-out beauty that was capable of matching looks with Sandra. On the other—and most important—hand, Enid had the ability to make men and women like her;

in her less boisterous way, Enid's charm and personality made itself felt even before she spoke…" (Long *Circle* 60). Despite the narrative's claims that Enid's physical appearance is not her most important quality, it still finds it necessary to compare her beauty with Drake's. Although there are physical descriptions of many of the male characters in *Circle of Confusion*, their relative attractiveness is not mentioned. That the novella only contrasts the two female characters suggests that physical appearance is, in fact, a woman's most important attribute. Because Enid is deficient in that regard, she must make up for it in other ways—which are further framed as diametrically opposed to Drake's. Where Drake is straightforward and stubborn, Enid is quiet and charming. Enid is the perfect wife—dutiful, kind, and supportive—whereas the unmarried Sandra Drake is a menace. These contrasts serve to highlight the seemingly dangerous differences of the new woman from the idealized model of traditional feminine behavior.

The narrative makes its criticisms of the new womanhood explicit in an exchange between Enid and Sandra. Although lengthy, it is worth providing a significant portion of the two women's conversation as the Sandra Drake stories have never been republished. Enid begins:

> "'Look, Sandra, what are you trying to prove?"
>
> "That I'm as good as any man."
>
> "Spinach. Ask any man and he'll probably admit it. What you're trying to prove is that you're better than all men, isn't that it?"
>
> "Well—"

> "And since you are superior to men, no doubt you'd prefer legal protection for them—marriage laws designed to assist and protect the weaker and inferior male; labor restrictions so that grasping women may not take advantage of them; protection so that avaricious women will not be able take advantage of his lesser experience?"
>
> "Why that's ridiculous!"
>
> "Is it? A few hundred years ago, men set up such laws to protect women because they realized that there were among their own sex, men who would think nothing of taking advantage of an unwary woman. As soon as the women decided that they were equals, men reluctantly removed that protection…."
>
> "I'd [Enid] scream like a stuck pig if any man decided that I couldn't take care of myself. But I have enough sense to realize that all of the courtesies that men offer me are tokens of their affection and not gestures toward someone who cannot get in out of the rain without help." (Long *Circle* 60-61)

Such arguments were common throughout this period, and so their use here is not surprising. However, it is worth noting that statements such as these depend on a willful blindness to the power of social norms to shape individuals' lives. Labor laws, for example, are not to prevent "grasping" individuals from taking advantage of others but rather so that qualified individuals who are not part of the dominate group have equal access to employment opportunities. Although there may have been few actual laws preventing women from entering certain fields, many were nonetheless rejected by hiring managers who did not believe women were suitable for the job in question. This attitude

may have stemmed from an honest desire to protect women from difficult labor, but in doing so, it assumed that women were unable to make such decisions themselves. Yet, it is clear that Enid, herself an intelligent and educated woman, believes her arguments. Her position of privilege as a middle-class, white, heterosexual woman blinds her to the numerous obstacles that less privileged women regularly encounter.

That this speech is really the words of a white, male author adds an additional layer of privilege. Unable to see the many ways in which contemporary social norms and practices are discriminatory, George O. Smith (as Wesley Long) instead creates an exaggerated version of the "independent woman" to highlight the perceived dangers she represents while ignoring the numerous inequalities inherent in the status quo. That this attempt has to resort to near-caricature to make its point paradoxically reveals the flaws of such an argument. It also suggests a growing awareness, albeit repressed, of the fictional nature of what had once seemed like stable gender categories. In contrast to the more subtle recouping of normative values in 1942's *Beyond This Horizon*, the explicit warnings embodied by Sandra Drake in 1944 suggest increasing anxiety about maintaining patriarchal gender norms separating women from science and technology.

Redevelopment, another Sandra Drake story published in *Astounding Science-Fiction* later that same year, further explores the negative effects of Drake's non-feminine behaviors, especially when combined with advanced science and technology. After obtaining an experimental spaceship engine, Drake leaves to explore the Sirius star system. But first, she misleads the male engineer from *Circle of Confusion*, John McBride, and Drake's former lover, Steve Hammond, about her true destination.

According to Hammond, "'all that dame [Drake] wanted was to be the first human being to set foot on another, extra-solarian planet! She wanted to be known as the first person to ever seek another star'" (Long *Redevelopment* 142). This negative portrayal of Drake's desire to explore, and her decision to exclude members of the opposite sex from her project, is especially interesting when contrasted to that of the Space Guards in *Orbit XXIII-H*. Their decision to leave Gwendolyn Le Marr behind without her knowledge or consent while they went to Titan was portrayed as noble; Drake's decision to single-handedly extend the scope of human knowledge is framed as deceitful.

Although Drake successfully achieves her goal, her accomplishment is quickly minimized. Upon arriving in the Sirius system themselves, McBride and Hammond pause to admire:

> …the splendor of the first binary every seen by man. Hammond mentioned it, as a matter of fact.
>
> "How about Drake?" asked McBride.
>
> "We're still the first *men*," returned Hammond.
>
> "Wouldn't Drake howl to hear you say that," laughed McBride. "She's been suffering under the fact that every time she did anything new, she had to qualify it by saying: 'The first woman—" (emphasis in original, Long *Redevelopment* 145)

Here, the use of "man" as a synonym for "human" is naturalized. In fact, McBride and Hammond seem offended that they have to specify their gender instead of unproblematicly seeing themselves as accurate representatives of an entire species. Their own annoyance at having to qualify the scope of their achievement quickly gives way to

belittling Drake's frustration at being repeatedly forced to do the same. While it may be tempting to paint such statements as simply sexist, they also demonstrate a widespread lack of awareness of women's roles in society. Much like science fiction fans' inability to acknowledge the presence of female fans among their ranks, *Redevelopment*'s portrayal of gender norms relies on an idealized version of femininity that obscures the lived realities and experiences of actual women. This blindness to the ways in which gender norms restricted women's (and men's) lives helps to explain why the U.S. Office of War Information, whose duties included labor replacements for those serving overseas, developed its erroneous image of female workers. Such attitudes were not intentionally misogynistic but rather reflected the pervasiveness of naturalized gender ideals and their ability to shape perceptions.

While undeniably a product of its cultural milieu, *Redevelopment* also actively engages in a project of warning (male) readers of the dangers of female non-compliance with gender norms. After engine failure forces Drake to land on a planet in the Sirius system, Drake does not attempt to learn the language of the friendly natives. Instead, she demands they learn English. After McBride and Hammond arrive in the system, they quickly discover the source of the engine trouble and work out a solution. That the two men are able to quickly identify and solve the engine problem, whereas Drake is forced to crash land, naturalizes gender norms that see men as "naturally" good with technology. The planet Drake lands on is inhabited and the natives have a fairly sophisticated science of their own, yet it does not seem to occur to Drake to fix the engine herself. Instead, she waits for the men she is sure will follow her to the Sirius system to rescue her. As the

owner of her own spaceship and someone with previous adventuring experience, it seems unlikely that Drake would be so ignorant of how her ship functions. The narrative's easy acceptance of this fact suggests that even when women have access to advanced technologies, they cannot (or will not) understand how they function. Thus, the use of such devices is best left in the hands of men.

The narrative further argues that In-Human Women should be punished for failing to conform to gender norms. Instead of rescuing Drake, McBride and Hammond decide to maroon her on the alien planet to teach her a lesson. The narrative then takes a rather convoluted path to blame Drake for her own abandonment. The only aliens who can speak English go to meet McBride and Hammond but, unable to understand what is happening because of the language barrier, Drake does not ask to go with them and is left behind. Although the aliens make it clear that they "'no like Drake,'" it also does not occur to them to include her in the welcome party and perhaps get rid of her (Long *Redevelopment* 165). Instead, the narrative leaves Drake with the aliens so that she can understand the consequences of her actions: "…in the brief minutes that Sandra looked facts in the face before she took to demanding impossible things once more, she realized that she had backed into her own trap. She had been demanding. She had chosen to teach those who met her the Terran language instead of learning Telfan [the aliens' language]" (Long *Redevelopment* 163). Thus, the true architect of Drake's predicament is herself, and more specifically, her failure to conform to gender norms. The two men make it clear they would have rescued Drake if she had asked for help rather than demanding it. Reluctance to request assistance is a stereotypical masculine trait and Drake's attempt to

co-opt it is portrayed as the root of her trouble. Furthermore, the aliens' dislike of her stems from her "demanding" nature. Thus, even aliens who do not share any of Earth's cultural norms view Drake's behavior, not of evidence of a commanding individual, but as a serious personality flaw. This further naturalizes gender norms by suggesting that they are inherent to (intelligent) life itself.

The story's ending makes it clear that Drake will not be harmed by the Teflans and that she will eventually be rescued, although it make take many months before someone can come for her. Her fate, then, is a kind of time-out for bad behavior. While highlighting the distastefulness of non-normative women, *Redevelopment* also suggests that such behavior must be dealt with in the same way one might deal with a misbehaving child. Once Drake has reflected on the error of her ways and perhaps "matured," she will be able to reenter society. Until then, she will be disciplined for failing to conform to social expectations. Sandra became in-human when she stepped outside of socially acceptable gender roles and she will be confined with other non-humans until she learns to act "like a lady."

One more entry would follow in the Sandra Drake series, *The Fixer*, in the May 1945 issue of *Astounding Science-Fiction*. Although none of these novellas have ever been republished, they still represent a substantial dedication to the adventures of a non-normative woman on the part of the author and the editorial staff of *Astounding Science-Fiction*. Unlike Gwendolyn Le Marr, who could be easily shuffled off-stage in *Orbit XXIII-H*, the amount of time and ink spent detailing the "dangers" of Sandra Drake suggests a kind of obsession with the independent woman she represents. Over the course

of the war, increasing numbers of women established their competence in formerly masculine domains, making it harder to deny their active involvement in human endeavors. Like "the lady who doth protest too much," the narratives' exhaustive detailing of Drake's flaws point to increasing patriarchal anxieties about changing gender roles. Her portrayal as an In-Human Woman is also repeatedly linked to her (mis)use of technology, suggesting an attempt to separate (independent) women from science and technology.

While the science fiction community's fascination with science and technology made it more open to changing understandings of humans' relationships with machines, gender roles were much more heavily naturalized and the gender dynamics of the community predisposed it to accepting a system favorable to white, middle-class males. As we have seen, however, portrayals of gender roles in science fiction became increasingly complex as the war progressed. The treatment of Gwendolyn Le Marr in 1938's *Orbit XXIII-H* could no longer be accepted unquestioningly by the Sandra Drake series in 1944. Even the reactionism of the Sandra Drake series is evidence of a growing awareness of the problematic nature of gender norms. Postwar retrenchment of gender norms would seemingly undo much of this tentative progress, but as I shall argue in Chapter 4, the truth was often much more complex and contradictory.

CHAPTER 4: WOMEN, SCIENCE AND TECHNOLOGY IN THE POSTWAR U.S.

After the remarkable Deirdre in C.L. Moore's 1945 "No Woman Born," few female manufactured humans appeared in the pages of *Astounding Science-Fiction* during the rest of the decade. The female characters who did appear were often portrayed in the home with exclusively domestic concerns and/or framed as erotic objects of the male gaze. That such portrayals of women were not mixed with the community's interest in "thinking better," discussed in Chapter 2, suggests a (perhaps unconscious) desire to separate the feminine from the machine by (re)containing women in the domestic sphere away from the masculine world of logical machines. That the science fiction community largely embraced techno-social integration in other contexts points to a reluctance to acknowledge how these changes also challenged patriarchal gender norms. Within the science fiction community, however, women became increasingly visible in the latter half of the decade. As Lisa Yaszek notes in *Galactic Suburbia: Recovering Women's Science Fiction*, "Nearly 300 women began publishing in the SF community after World War II, and the stories they wrote both implicitly and explicitly…stake[ed] claims for women in the American future imaginary" (3). This chapter will examine the ways in which the science fiction community often reflected larger socio-political efforts to reinstate traditional gender norms after the disruptions of war as well as how women within the science fiction community challenged such attempts.

In *How We Became Posthuman: Virtual bodies in Cybernetics, Literature, and Informatics*, N. Katherine Hayles identifies a similar resistance to acknowledging the (subversive) connections between gender and technology, specifically the ways in which

the implications of cybernetics threatened the basis of patriarchal authority. Hayles focuses on Norbert Wiener's pair of foundational cybernetics texts, *Cybernetics, or Control and Communication in the Animal and the Machine* and *The Human Use of Human Beings: Cybernetics and Society*.[49] Hayles argues that the recursive, inter-connected nature of cybernetic systems fundamentally challenges the autonomy of the liberal humanist subject. The liberal humanist subject is the foundation of the (white, heterosexual) masculine Self's ability to view the Self as a disembodied mind while Others are contained within bodies. Hayles identifies several passages in both of Wiener's texts that reveal "…how important it is to Wiener to construct the boundaries of the cybernetic machine so that it reinforces rather than threatens the autonomous self" (105). Wiener, however, is only able to repress the challenges represented by cybernetics, not erase them. Similar resistances can be found in the science fiction's community's desire to "think better" which I discussed in Chapter 2. The focus on improving the mind can be read as attempt to deny the importance of the body in socio-political systems. Yet the methods of "thinking better" that most interested the science fiction community—Dianetics, cybernetics, Ā—all acknowledged the influence of bodily systems on the mind. Within the science fiction community, the desire to embrace science and technology came into conflict with its desire to maintain gender norms. How these anxieties were addressed during this period laid the groundwork for many of the debates that still shape conversations about science, technology, and the gendered subject today.

[49] Cybernetics and Weiner's texts are also discussed in Chapter 2.

"Happy" Homes

In *Homeward Bound: American Families in the Cold War Era*, Elaine Tyler May argues that "Americans of all backgrounds rushed into marriage and childbearing" in the postwar years (xvii). Marriage, fertility, and birth rates all spiked after the end of the war. The average age at first marriage dropped for both men and women. Home ownership increased with the rise of planned communities outside of city-centers.[50] And while getting married, starting a family, and buying a home may have been framed as crucial elements of the American dream, the fiction published in *Astounding Science-Fiction* often revealed anxieties about the effects of achieving that ideal. As these uncertainties often dealt with technology in the domestic sphere, such narratives frequently focused on women and the heteronormative family.

Written by the husband and wife team of Henry Kuttner and C.L. Moore under one of their many pen names, "This is the House" articulates several contemporary anxieties about marriage and suburban family life.[51] Published in February 1946, "This is the House," follows Bob and Michaela Melton as they move into their first home in the suburbs. At first, the house at "Sixteen Pinehurst Drive seemed exactly what they wanted. It wasn't ultra-modern; it had a certain solid air of assurance about it" (O'Donnell 193). But after they move in, the Meltons quickly discover several strange things about the house including a furnace that does not use up any coal, a doorbell only Michaela can hear, and a freezer which randomly produces strangely-colored ice. Eventually, the house

[50] This information comes from Homeward Bound: American Families in the Cold War Era by Elaine Tyler May and from Historical Statistics of the United States, Earliest Times to the Present: Millennial Edition.

[51] "This is the House" was originally published as written by "Lawrence O'Donnell."

begins to affect the Meltons' behavior; Michaela, who spends all day in the house, begins to lose track of time, whole days seeming to disappear in the blink of an eye. Concerned, the Meltons decide to move, but it is too late. The house has ensnared them. It forces them to go into hibernation, effectively preventing them from leaving or from doing anything else. The larger narrative relates that the house was built by an extra-terrestrial anthropologist who wished to study humans and who modified the house to suit its needs. The house is an incredibly advanced machine: "It was mindless; it was not alive; it had no consciousness or sense of ego. It was a machine" (O'Donnell 212). It is not malicious; the Meltons are simply unfortunate enough to be caught in a machine for living not designed for human life.

That this alien machine is also the American ideal of a home of one's own points to larger cultural uncertainties about the rapid techno-social changes taking place in the lives of many Americans. Lisa Yaszek notes that "…many Americans first experienced [postwar] technocultural life…through the industrialization of the home" (8). A computational device such as the one described in *Astounding Science-Fiction*'s 1944 scientific article "Mathematician" is fundamentally different from the automatic machines that began to fill American homes after the war. The Westinghouse machine in "Mathematician" is for a hypothetical power company which uses it to calculate potential power needs. It had a designated task in a designated context. A dishwasher, however, might have a variety of uses in addition to washing dishes. Furthermore, its presence in the home changes other things. The time and tools required for washing dishes are different when one is washing them by hand or by machine. Such changes were not

necessarily bad—they freed up time for other pursuits, for example—but they led to alterations in basic patterns of daily life for many Americans. That these labor-saving devices were also designed for and used in domestic spaces meant they additionally challenged patriarchal attempts to separate the feminine and the machine. "This is the House" illustrates the anxiety-producing nature of such extensive changes.

The uncanniness of the Melton's home also speaks to another postwar concern: the continual (re)purchasing of consumer goods. New homes need new appliances which, in addition to their ostensible functions, symbolically represent their owners' wealth, taste, and lifestyle. An older machine may work perfectly fine, but if it does not carry the correct social connotations, it fails to satisfy all of the reasons for its purchase. As May argues in *Homeward Bound,* "Suburban homes filled with material possessions could not always compensate for the dissatisfactions inherent in the domestic arrangements consumerism was intended to enhance and reinforce. In fact, those very domestic arrangements, although idealized and coveted at the time, were the source of countless miseries" (162). This constant treadmill of buying and replacing home appliances and furnishings is paralleled by the Meltons' experiences in their new home. They do not control the home and its appliances; the home and its advanced, integrated machines control them. That this occurs in an "older" home rather than a newly-built suburban dwelling suggests that the postwar imperative to consume could negatively affect even those who try to resist it.

The home at the center of William Tenn's "The House Dutiful" is less menacing than the one encountered by the Meltons, but it also subtly affects the behavior of its

occupants. The narrative begins when Paul Marquis, who works as a uranium prospector, arrives at a plot of land he had recently purchased to find a fully-furnished house. Stunned, Paul tells his companion "'All this, the house, the furniture, the accessories, was not only not built nor sent here by me, but—but [sic] wasn't here a week ago when I came out with the man from the land office and bought the property'" (Tenn 20). And it is not just any house; the mysterious building is Paul's dream house. Everything from the styling of the appliances to the books on the shelves are to his tastes. Like the Meltons, Paul Marquis eventually concludes that the house was designed by aliens. In "The House Dutiful," the aliens visited Earth long ago and left behind their advanced shelter device. Unlike the Melton's house, this one adapts itself to Paul. The house does all the chores: it cleans the dishes, provides weather-appropriate clothing for its residents, and cooks meals just the way Paul likes them. Initially concerned by this seemingly alive house, Paul eventually comes to accept it, especially as it seems to want nothing more than to please him. Paul's reason for buying the land on which the house appears was so that he could build a home for his future bride, but the house makes a wife redundant. It does the housework perfectly, and more importantly, invisibly. Paul's house successfully fulfills the patriarchal ideal of a perfectly kept home without having to acknowledge the (female) labor needed to maintain such perfection. It thus integrates science and technology into daily life without challenging gender norms. With the house to see to his needs, Paul loses interest in his fiancée. The ideal wife, it seems, is a perfect housekeeping machine rather than a flesh and blood woman with her own needs and interests.

The house does not just change itself to suit Paul, it transforms other humans as well, most notably Esther Sakarian. A bacteriologist, Esther works for the same company that employs Paul. The two are friends, but Paul makes it clear both to Esther and to readers that he is not interested in a romantic relationship with Esther. He is engaged to another woman who will excel, in his words, at "'…handl[ing] the menial essentials of domestic living with the affection and grace of a wife, a good wife'" (Tenn 18). Esther teasingly tells Paul that he would never want to be married to a woman "'…who had work of her own to do and would be tired as you at the end of the day….even if you'd confided to [her]…that you found her an ideal person with whom to discuss lab kinks and personal aspirations'" (Tenn 18). In short, Esther—with her scientific knowledge and opinions of her own—can be a companion to Paul but is not feminine enough to be a "proper" wife. For her part, Esther is not interested in a romantic relationship with someone who would attempt to constrain her independence once they were married. But the house slowly works its magic on Esther. She becomes "'…most traditionally feminine…. When someone like Esther Sakarian who has avoided the 'You are so right, my lord' attitude all her life acquires it overnight, she has had help. In this case, the house'" (Tenn 31). Paul, of course, is "'...happy about Es getting some womanly sense in her head'" (Tenn 31). Paul had previously stated that he respected Esther's scientific mind, but her lack of "womanly sense" did not fit with gender norms. That the house's "service" to Esther is to transform her into a "traditionally feminine" woman, perhaps unintentionally, points to the power of patriarchal ideals to inscribe themselves onto female bodies.

Notably, the house does not make Paul more open to Esther as she is: an independent woman and a respected scientist in her own right. Instead, it makes her over into Paul's ideal of femininity; an ideal which depends on seeing woman only as domestic goddesses rather than as fully-realized people. Paul tells Esther early in the narrative that "'I don't want a mate—I want a marriage'" (Tenn 18). In other words, he does not want an equal partnership but rather "'…someone who'll kiss me while she's preparing dinner'" (Tenn 18). Her interests and her needs should revolve around him; the house transforms Esther into this patriarchal ideal. The narrative frames this result as a happy one. Paul and Esther have everything they can ever want in the house, including a traditional heterosexual union. The true threat the house poses is that "Eventually this domestic utensil could control all humanity and make it jump at the vagrant whims of Paul Marquis and Esther Sakarian…. And if it does ever control the planet—why, there will no more objection to it than Esther and Paul exhibit! ….it can run our world and make us think we like it" (Tenn 34). The house, at least theoretically, lives to serve Paul. His personality and sense of self are not radically altered as is done to Esther. Thus, the real fear expressed by the narrative is that technology may one day cause men to be treated the way patriarchy treats women.

(Scary) Mutant Babies

In addition to focusing on the potentials and perils of home automation, many of the stories published in *Astounding Science-Fiction* after the war examined the effects of science and technology on the heteronormative family. Such stories often explored Cold War fears about the long-term repercussions of nuclear power. Radioactive fallout

extends the immediate threat of nuclear war to wipe out entire cities into a future in which any survivors are the last of their kind. Thus, the misuse of nuclear power does not just threaten contemporary populations but also the survival of the human race as a species. Such narratives often focused on children mutated in some way by exposure to radioactivity.[52] Given the interest in science and technology expressed by the *Astounding Science-Fiction* community (discussed in Chapter 2), the narratives that explored these concerns in the pages of the magazine often reflected the desire to embrace the effects of science and technology—as long as gender norms remain unchanged.

Set in a future in which most of the Earth has been destroyed by atomic warfare and bio-engineered plagues, *Tomorrow's Children* by Poul Anderson and F.N. Waldrop follows the survivors' attempts to rebuild society in the ashes of civilization. At the center of the story is Hugh Drummond, who works for what is left of the U.S. government. Drummond travels throughout North America, helping the government reestablish contact with its citizens. As he does so, he encounters community after community in which almost all the children born after the civilization-destroying war are "different" in some way (Anderson and Waldrop 24). Official reports state that "'The birth rate's a little over half the prewar…and about seventy-five per cent of all births are mutant, of which possibly two-thirds are viable and presumably fertile'" (Anderson and Waldrop 27). And it is not just people directly exposed to radioactive areas who are affected; even the most isolated have high numbers of mutant births.

[52] The inclusion of these mutant children stretches the definition of manufactured human outlined in the introduction. Children mutated by exposure to radioactivity are more than just genetically abnormal; they are a blending of biological human bodies with the effects of advanced (nuclear) science. Their manufactured nature, then, is bound up with their genetic code.

During Drummond's visit to a small town in what was once northern Minnesota, his conversation with a local family is interrupted when "One of the babies began to cry. It had two heads" (Anderson and Waldrop 26). Crying babies are a common part of domestic scenes, but this child is anything but common. The accompanying illustration in *Astounding Science-Fiction* further strengthens the bizarre juxtaposition of "normal" family life and abnormal babies (Figure 6). The baby in the illustration resembles the Gerber baby (which debuted in 1928), itself a symbol of the "ideal" American baby. But this baby of the future has not one adorable face, but two. This points to anxieties about the consequences of techno-science in domestic spaces by suggesting that the misuse of science and technology can fundamentally alter the heteronormative family. Upon his return to base, Drummond tells his commander that the mutant births are "'…wrecking our culture. We at least preserved our historical continuity, but even that's going now. People are going crazy as birth after birth is monstrous'" (Anderson and Waldrop 27). Thus, the mutant children not only challenge the survival of the human race as a species, they also represent a threat to the sovereignty of the United Sates. Without a new generation of "normal" Americans to carry on its traditions, the country will die.

Figure 6 Edd Cartier's illustration for *Tomorrow's Children* which appeared in the March 1947 issue of *Astounding Science-Fiction* (57).

At this point, *Tomorrow's Children* begins to question such arguments. Fear of mutant children is "'…leading to infanticide, desertion, despair, a cancer at the root of our society'" (Anderson and Waldrop 28). But the narrative soon makes it clear that it is

not the mutant children who are the cancer but rather people's misguided reactions to them. When one general argues that "'All mutants and their parents…[should] be sterilized whenever and wherever detected,'" he is opposed by other members of the governing council who argue that "'it wouldn't do a bit of good. Mutants would still be born. The poison is everywhere. Normal parents will give birth to mutants, somewhere along the line. We just have to accept that fact, and live with it. The *new* human race will have to'" (emphasis in original, Anderson and Waldrop 28; 29). This directly confronts the fear of the death of the human race by suggesting a solution to doomsday thinking. A new human race is inevitable; the only thing the current population can do is make sure that the world these (mutant) children inherit is a peaceful and just one. Those who lived through the global war that destroyed civilization must overcome the fear of difference that lies at the heart of so much human conflict. This line of reasoning, however, still draws a distinction between "normal" and "mutant," and the human race is only willing to accept the mutant children because it has no other choice. It also (re)frames the issue in terms of patriarchal legacy. Mutant children are accepted because they are the only way (male) government leaders see to continue their familial and national legacies. These children may be different, but they are still their fathers' children. Thus, the novella addresses anxieties about the effects of techno-social integration by removing the debate from the domestic sphere and placing it the public sphere of (masculine) governmental policy.

Narratives exploring the issue of mutant children often elicited strong reactions from fans. Two interesting examples of this are fans' responses to Judith Merril's "That

Only a Mother" and Wilmar Shiras's *Children of the Atom* series. Published in the June 1948 issue of *Astounding Science-Fiction*, "That Only a Mother" follows Margaret Marvell during the last stages of her pregnancy, the birth of her (mutant) daughter, and the first several months of the child's life.[53] Margaret's husband, Hank, is away from home working on a scientific project for the military and only appears in the last few pages of the narrative. Widely anthologized and discussed by scholars, "That Only a Mother" also received significant attention from fans soon after its publication. Merril's story was voted the second best story of the June issue of *Astounding Science-Fiction*'s ("Analytical" Sept. 1948 118). Campbell notes in his commentary on the results that "in taking second place—against [Eric Frank] Russell and Asimov—on her first time out, Judith Merril has established a sound record indeed….we hope and expect we'll be hearing more from her" ("Analytical" Sept. 1948 118). This praise from Campbell was further supported by fans' comments about the story.

Two readers in the October 1948 issue gave "That Only a Mother" especially high marks. Rosco E. Wright states that Merril's story "…is about the finest short story I have ever seen…" (158). Oliver M. Brown compares it favorably with Charlotte Perkins Gilman's "The Yellow Wallpaper," saying that both stories are "almost *too* good" (emphasis in original, 159). Both men also report their wives' opinions about the fiction in the June issue, including of "That Only a Mother." Brown states that Merril's story gave his wife "…nervous indigestion and nightmares for a week afterwards" (159). Wright's wife, also a long-time science fiction fan, "…found the story highly upsetting

[53] I will discuss the narrative content of "That Only a Mother" in more depth later in this chapter.

because IT COULD HAPPEN NOW" (emphasis in original, R. Wright 158). Unfortunately, neither man specifies what aspects of the story their wives found so upsetting, but it is interesting that both women had strong, visceral reactions to "That Only a Mother." Unlike Anderson and Waldrop's *Tomorrow's Children*, which focuses on how men and (male) governments must come to terms with being superseded by mutant children, "That Only a Mother" focuses on the experiences of the women who must undergo the discomfort and risks associated with pregnancy and childbirth. Merril's portrayal of the mother of a (mutant) child demonstrates the intimate connections between the (feminine) biological body and the products of advanced science and technology. Unlike integrating new technologies into the home or learning to "think better," the woman at the center of "That Only a Mother" is less able to determine the terms under which her relationship with (nuclear) science is begun and continued. As other scholars have noted, these aspects of "That Only a Mother" drive home the notion that women must educate themselves about the impact of science and technology on their daily lives rather than trust blindly in patriarchal authority for protection.

Unlike Merril's "That Only a Mother," Wilmar Shiras's stories of mutant children focus on the experiences of the children themselves rather than those of their parents. Shiras published three stories in her *Children of the Atom* series over the course of the 1940s: "In Hiding" (Nov. 1948), *Opening Doors* (March 1949), and *New Foundations* (March 1950).[54] Tim, the young mutant introduced in "In Hiding," "…had completed, within three years, more than half the subjects offered by four separate universities"

[54] I will discuss this series in more depth later in this chapter.

before his fourteenth birthday (Shiras "Hiding" 24). He excels at chess, is a published author, and uses his self-taught knowledge of genetics to develop a new breed of housecat. But this is all done under a pseudonym and Tim carefully hides his intelligence from almost everyone he meets. He tells the school psychiatrist who has befriended him that "'The only way I can live in this world is in disguise—until I'm grown-up, at any rate.…I saw how people hate anyone who is better or brighter or luckier'" (Shiras "Hiding" 22-23). The psychiatrist, Dr. Peter Welles, agrees with Tim that others may feel threatened by his genius and helps the boy conceal his secret. In later installments in the series, Tim and Dr. Welles find other highly intelligent mutant children and decide to create a special school for such students.

The brilliance of Tim and the others is not due to random chance. One or both of each child's parents was exposed to radiation during an explosion at a nuclear plant. Initially, none of the workers seemed effected, "'But the radiation had some effect which was very slow'" (Shiras "Hiding" 32). Within two years, everyone exposed had died. In the intervening time, many of the workers had children, most, if not all, of whom share Tim's mental abilities. Shiras's *Children of the Atom* series confronts the Oedipal fears that such children will eventually supersede their parents and the human race as a species. Tim and the others are undeniably brilliant. They are far more capable of learning and synthesizing knowledge than those who do not share their gifts. In the closing scene of "In Hiding," Dr. Welles reflects on what a generation of such children could mean for the future of the human race. He concludes that "Even when Timothy Paul and those like him should unite in a maturity undreamed of, to control the world if they chose, Peter Welles

would be Tim's friend—not a puppy, but a beloved friend—as a loyal dog, loved by a good master, is never cast out" (Shiras "Hiding" 33). Dr. Welles's contentment with this fate suggests a way to reframe Oedipal fears about mutant children. They may supersede their parents, but it is the natural order of things for them to do so. The equation of humans with "loyal dogs" may seem to gesture towards an unhappy future for (normal) humans, but the same phrase states that Tim and others like him will be "good masters." Perhaps they will be better stewards of the Earth and its peoples than humans ever could be.

"In Hiding" was voted first place in the Analytical Laboratory, beating out the second installment of van Vogt's *The Players of Ā* (Feb. 1949 146). Campbell notes that "Wilmar H. Shiras sent in her first science-fiction story, 'In Hiding' [to *Astounding Science-Fiction*]. I liked it, and bought it at once. Evidently I was not alone in liking it; it has made an exceptional showing in the Lab, here—the sort of showing, in fact, that Bob Heinlein, A.E. van Vogt, and Lewis Padgett made with their first yarns" ("Analytical" Feb. 1949 146).[55] Other installments in the series did equally well. *Opening Doors* was voted first place and *New Foundations* was voted second place behind the conclusion of Hubbard's serialized novel *To The Stars* ("Analytical" June 1949 84; June 1950 98).

Fans were enthusiastic in their letters about the series as well. C.W. Van Tilburg asks in the February 1950 issue of *Astounding Science-Fiction* when they can expect more stories from Shiras. He states that "We all—I think I'm really speaking for the

[55] "Lewis Padgett" was one of the many pen names used by Henry Kuttner and C.L. Moore. Campbell was almost certainly aware of this fact (as were many fans), but he maintained the fiction of Padgett's "reality" in his editorial statements in the magazine.

fans—want to know more about Tim and Dr. Welles and the Kid Geniuses they were uncovering" (Van Tilburg 136). William B. Roosa argues in the June 1950 issue that "'In Hiding' is without a doubt the best 'Superman' story I have ever read in ASF [*Astounding Science-Fiction*]" (159). Female fans also praised the story. Edith J. Carr, for example states that "I like the Wilmer [sic] Shiras stories; the problem is with us, even without mutants" (131). Neither in these letters nor elsewhere are there mentions of the kinds of reactions elicited by "That Only a Mother." Merril, of course, was going for a different effect than was Shiras, but both texts deal with many of the same themes. In the case of Shiras, fans seem to have responded positively to the idea that mutants are not necessarily a threat to humanity but rather an opportunity for the human race to move forward. Their reactions also suggest that fans saw themselves as children of the future, much like Tim and the others, rather than those left behind by such children.

The varying portrayals of domestic technologies and mutant children in the narratives that appeared in *Astounding Science-Fiction* after the war suggest a qualified hope about the broader social effects of rapid developments in science and technology. While labor-saving devices and nuclear energy had enormous potential, it was not yet clear if that potential would be for good or ill. The links between such uncertainties and the portrayal of women in the narratives published in *Astounding Science-Fiction* point to concerns about changing gender roles in the postwar U.S. Although many women returned to the domestic sphere after the war, their wartime employment in traditionally masculine professions was a fatal blow to the patriarchal argument that women were fundamentally unsuited for such work. Awareness of this was often repressed in the years

following the war, but narratives like the ones discussed here often (unintentionally) revealed the links among women, the home, and scientific and technological developments.

Sexual Containment

The title for this section is borrowed from Elaine Tyler May's examination of family life during the Cold War. She argues in *Homeward Bound* that "The sexual containment ideology was rooted in widely accepted gender roles that defined men as breadwinners and women as mothers. Many believed that a violation of these roles would cause sexual and familial chaos and weaken the country's moral fiber. The center of this fear was the preoccupation with female 'promiscuity'" (May 103). The postwar science fiction community reflected the ideology of sexual containment in a variety of ways. Not only were women repeatedly linked to domestic concerns in professional science fiction, many of the writers in *Astounding Science-Fiction* portrayed (unattached) women as dangerous as a way to contain the sexuality of their female characters. Another strategy of sexual containment used by the science fiction community was to frame women in terms of their sexual desirability vis-à-vis the heterosexual male gaze, a technique which was especially common in illustrations in both professional and fan publications. Collectively, these strategies argued that women (still) had no place in science (fiction).

An early example of the ideology of sexual containment in science fiction is Murray Leinster's "A Logic Named Joe," which features an unattached female who is even more of a threat to the unnamed narrator than are Joe and his network of logics.[56]

[56] "A Logic Named Joe" is also discussed in Chapter 2.

The story begins by telling readers that "It was on the third day of August that Joe come off the assembly line, and on the fifth Laurine came into town, and that afternoon I saved civilization" (Leinster 43). In this opening, Laurine gets equal billing with Joe and it is not clear if she or Joe is the menace from which civilization needed to be rescued. This ambiguity suggests that it is the link between a woman and an advanced machine that is truly threatening to both the narrator and to all of human society. The narrator next tells readers "The way Laurine fits in [to the story] is that she makes cold shivers run up an' down my spine when I think about her" (Leinster 43). Thus, before readers are more than two paragraphs into the story, the very presence of the beautiful Laurine is established as terrifying. More specifically, Laurine is a sexual threat to the narrator's marriage. The narrator states that "when it comes to ordinary blondes I can leave 'em alone or leave 'em alone, either one. A married man gets that way or else. But Laurine has a look of unquenched enthusiasm that gives a man very strange weak sensations at the back of his knees. And she'd had four husbands and shot one and got acquitted" (Leinster 51-52). Not only is Laurine a threat to the narrator and his marriage, her effect on men is one that men are helpless to resist. Once empowered by technology, the danger Laurine represents is not just to men, but to all of human society.

As I discussed in Chapter 2, the problems caused by Joe were relatively easy to contain; the narrator simply unplugged Joe. The danger of rampant female sexuality, however, is not so easily dealt with. The illustrations that accompany "A Logic Named Joe" in *Astounding Science-Fiction* point to the dangerous appeal of female sexuality which must be carefully guarded against to avoid social chaos. Figure 7 illustrates the

scene in which Laurine contacts the narrator. The logics provide both visual and audio communication so the narrator (and readers) are able to see the beautiful Laurine. The curve of Laurine's breast is clearly defined in the illustration and the sheerness of her outfit implies that more was likely visible to the narrator which had to be tastefully obscured for publication. The illustration also shows that Laurine's hair and makeup are elaborately done. Makeup is often framed as one of the "tricks" woman use to seduce men. According to the text, this scene occurs just after Laurine had awoken from an afternoon nap, suggesting that this alluring, but false, look is her usual state. Laurine's makeup also gives her a predatory appearance and her mouth is especially emphasized. This both reduces her to a sexual symbol—her dark lips—and adds an element of menace to her allure. When framed as the object of the desiring heterosexual male gaze, a female mouth can represent both potential pleasure and the fear of being consumed. Notably, the illustration embeds Laurine within the technology of the logics, thereby further extending the linked threat established in the narrative's opening lines. Laurine was only able to contact the narrator because Joe's logic network enabled her to do so. Thus, "A Logic Named Joe" explores both the peril of uncontained female sexuality and the negative effects of unregulated technology on the

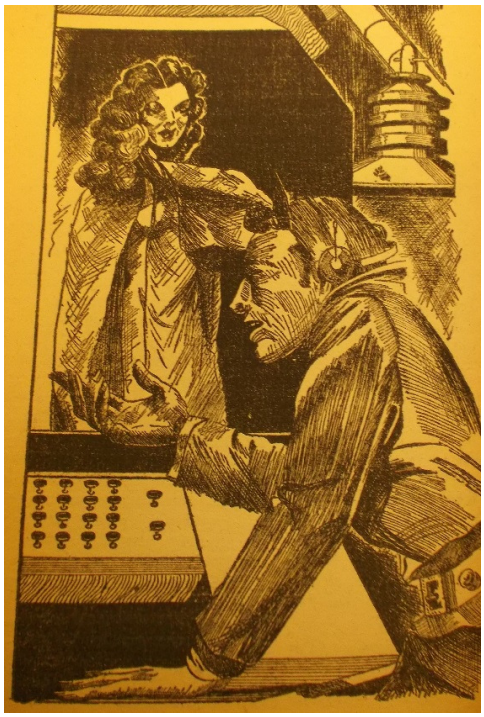

Figure 7 Illustration by Kildale for "A Logic Named Joe" which appeared in the March 1946 issue of *Astounding Science-Fiction* (150).

heteronormative family. The illustration further suggests that the two are most dangerous when united and outside of masculine control.

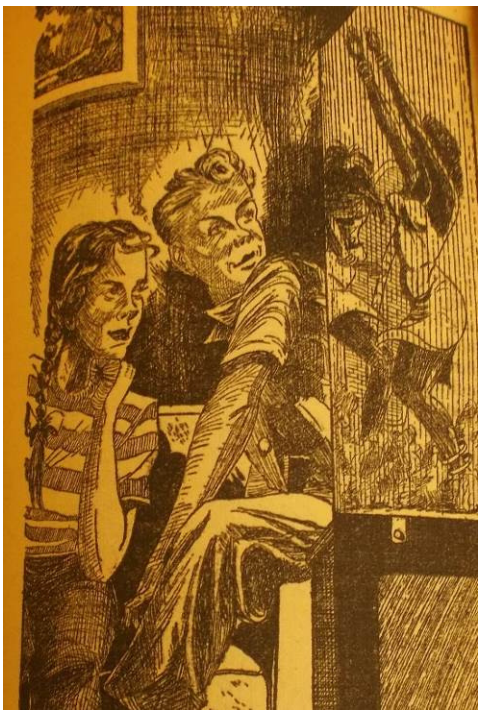

Figure 8 Illustration by Kildale for "A Logic Named Joe" which appeared in the March 1946 issue of *Astounding Science-Fiction* (145).

Laurine is not the only threat to normative values that Joe and his networked logics enable. Without the oversight of Central Control, people quickly begin using their logics to access "inappropriate" content. The only other illustration that appears in "A Logic Named Joe" shows one such scene. In it, two light-skinned children use the family logic to watch a broadcast of a "tribal" dance performed by two dark-skinned women. The women's faces are obscured; only their sensual dancing bodies are clearly visible. With their short skirts and heaving bosoms, the two women are clearly intended to evoke sexuality. Their dark skin also calls upon cultural stereotypes that view such individuals as less civilized and more primal/sexual. The male child is almost leering at the image, suggesting that he is experiencing sexual urges. The female child, however, looks more thoughtful, almost as if she is taking mental notes. Thus, not only does Joe threaten the heteronormative union of the narrator and his wife, the logic network quite literally brings the corrupting presence of the sexual Other into the idealized American home. Both illustrations dramatize the negative effects of female sexuality mixed with technology. That such scenes are intended to illustrate

"inappropriate" uses of networked technology again points to the danger of such devices when used by those who are outside the heteronormative family. It is only white, male control of such devices that prevents these (sexual) Others from subverting "normal" family life. By unplugging Joe, the narrator is able to defeat Laurine and restore masculine control of the logics.

A key expression of the ideology of sexual containment was portrayals of woman, not as individuals with their own sexual needs and desires, but instead as erotic objects for the heterosexual male gaze. An interesting example of this strategy can be found in Williamson's *Humanoids* series.[57] In both *With Folded Hands…* and in *…And Searching Mind*, the arrival of the Humanoids relieves women of many of their domestic responsibilities. Freed from household drudgery, the female characters almost immediately transform into erotic playmates for their husbands. When the main character of *With Folded Hands…* arrives home to find a Humanoid doing the dishes in the kitchen, he discovers his wife, Aurora, in their bedroom in "…her sheerest negligee…. Her red hair was piled into an elaborate shining crown" (Williamson 76). Aurora loves her new look and on one level this scene suggests that adult women do have sexual interests that are often subsumed by the demands of housework and childcare. Once freed from such obligations, they are able to be vibrant, sexually active individuals. However, the reaction of the main character to his wife's transformation is one of "…frightened indignation" (Williamson *Hands* 76). This response does not acknowledge his wife's potential sexual needs or desires but rather links her transformation to the invasion of his home by the

[57] This series is also discussed in Chapter 2.

Humanoids. Aurora's expression of her sexuality is thus reframed as symbol of a (mechanized) threat to the patriarchal family. That this threat occurs due to the presence of domestic machine—the Humanoids—points to (masculine) anxieties about science and technology in the domestic sphere, especially when they seem to "free" women.

In *...And Searching Mind*, Clay Forester also arrives home to find his wife, Ruth, wearing "…a sheer blue negligee that she would before have thought too daring" (Williamson *Humanoids* 65).[58] But unlike Aurora, Ruth did not choose this clothing for herself. She has been drugged with euphoride and is not entirely aware of her actions or her surroundings.[59] The "too daring" blue negligee, then, is what the Humanoids chose for Ruth to wear for her meeting with her husband. Presumably they did not do this to disturb Clay, but to appeal to him. This quite literally transforms the female character into an erotic object for the idealized heterosexual male gaze. Much like in the stories of "living" houses, the Humanoids replace the domestic labor of women with advanced machines. Yet the erotic role of women must still be performed by "real" (i.e. biological) women. Such advanced machines may free women from one aspect of the domestic sphere, but these narratives ensure that they still remain tied to the heterosexual economy that views them as objects rather than as independent Selves.

In contrast to the women's transformations, the male characters in the two narratives do not become sexually alluring creatures under the Humanoids' supervision. Instead, they are dressed in pajamas, presumably because such clothing is comfortable.

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[58] As "Clay Forester" is the name of the central character in the most widely-accessible version of *...And Searching Mind*, I use it here instead of his less well-known name from the serialized version published in *Astounding Science-Fiction*.

[59] A fictional drug, euphoride is administered by the Humanoids to make humans "happy."

These pajamas have fasteners that only the Humanoids can operate, which means that men must ask for their clothes to be removed. No mention of such restrictions is made in regards to Aurora and Ruth's clothing. Wives, then, are always available for their husbands' (sexual) pleasure while the men have more agency in deciding when and in what manner intimacy will occur. This reinforces the normative values that dictate "…masculine men would be in control with sexually submissive competent homemakers at their side" (May 86). Even the extensive techno-social changes caused by the Humanoids' arrival does not alter such values, at least for the female characters.

That the men must request the Humanoids' permission to disrobe and engage in sexual relations with their wives is framed as part of the horror of the Humanoids' all-encompassing service. They are no longer "masculine men in control," and thus the threat the Humanoids most clearly represent is to masculine independence. That women are even more confined to normative gender roles after the Humanoids' arrival seems to be of little concern to their husbands. This suggests that such feminine behavior is only an extension of "correct" gender roles. Changes to masculine gender roles, however, especially ones that make men more "helpless" and therefore more feminine, are portrayed as a serious threat. That this threat is enabled through the agency of advanced machines points to the ways in which challenges to gender norms were deflected onto technology. The Humanoids are threatening because they challenge the independence of the masculine Self; they are revealed as benevolent when it becomes clear that they have enabled the masculine Self to conquer the universe.

Framing women as objects of the desiring heterosexual male gaze also occurred in fanzines published in the latter half of the decade. In these cases, women were often literally framed in illustrations that appeared alongside the zines' text. Such illustrations did not always relate to the text they accompanied, such as the numerous nudes that appeared in *The Voice of the Imagi-Nation* (or, *VoM*). Figure 9, for example, is the cover of November 1945 issue of *VoM*. It not only includes a female nude, but also numerous disembodied eyes staring at the woman, literally making her an object of the (male) gaze rather than a subject with her own interest in the genre. Such drawings were so common they were given a name, VoMadiens, which explicitly frames these women in terms of their sexual experiences vis-à-vis male penetration. Published by the Los Angeles Science Fantasy Society, one of the oldest, continually operating science fiction groups in the U.S., *VoM* worked much like a modern day digital discussion board. Fans sent letters to the club to be published verbatim in the zine. Other fans would read the letters and send in their own responses for publication in future

Figure 9 Cover of the November 1945 issue of *VoM* (Goldstone).

issues. Because these letters were the entire content of *VoM*—it did not publish articles or fiction—the zine's self-proclaimed editorial policy was "to mirror fandom" (emphasis in original, *Voice* Halloween 1945). Despite the presence of women in the club, illustrations such as the one in Figure 9 suggest that the zine, and by extension science fiction, were masculine domains.

Such illustrations were common enough in *VoM* that they elicited little commentary from readers, pointing to a denial of the presence of women as anything other than objects in the science fiction community. This lack of comment was not the case for *Light*,[60] edited and published by Leslie Croutch, which featured two drawings of naked women in its Winter 1944 issue.[61] The first illustration, drawn by a fan named Zeke Zekley, appeared about halfway through the issue and featured a man wearing glasses seated at a desk looking at a small, pixie-like creature. The pixie is a naked female with clearly drawn nipples and pubic hair. The second illustration, which is neither titled nor signed by the artist, features a rather crudely drawn naked female figure. The woman is reclining with her head turned away from the viewer. Various parts of the woman are labeled with arrows pointing to the relevant location, including "Leg" and "Head" (*Nude* 33). Her breasts are simply labeled "!!" (*Nude* 33).[62] This second drawing was likely intended to be a humorous jab at the female nudes appearing in zines like *VoM*

[60] Although Leslie Croutch was based in Canada (making *Light* a Canadian rather than an American zine), it was widely read in the U.S. and Croutch was well-known to American science fiction fans.

[61] Due to publishing delays, the Winter 1944 issue of *Light* was not distributed until mid-1945.

[62] Due to copyright restrictions, I am unable to include these images.

whose purpose was to titillate (male) readers. But unlike *VoM*, Croutch's illustrations landed him in hot water with another member of the science fiction community.

Light was a member of the Fantasy Amateur Press Association (or, FAPA). FAPA members submitted issues of their zines for circulation to the entire membership, but the Winter 1944 issue of *Light* was not included in that winter's FAPA mailing due to objections from A. Langley Searles, another member of the FAPA. Searles's objection was not that the illustrations might offend (female) readers, but rather that they were pornographic. He threatened to bring the matter to the attention of the U.S. Post Office, which prohibited the distribution of pornographic material by mail.[63] Croutch responded to Searles in the next issue of *Light*:

> In the past I have done some things which offended. I admit that. If Searles had come out and stated his case in a decent, mannery [sic] way, I would have conceded the case. I see his side of things. I admit he is in the right where obscenity is concerned. (You'll likely note this issue of LIGHT isn't quite so torrid as former issues.) But what I do object to is Searles' manner and his browbeating attitude. Instead of approaching us like a gentleman and appealing to our good tastes and reasons, he has to assume a dictatorial attitude, and start to threaten blackmail. It is not his stand I object to, it is his method of obtaining his ends.
>
> I dislike a squealer, a stoolie, a tattle-tail. It smacks of Hitlorism [sic]. (23-24)

[63] In spite of an extensive search in the University of California, Riverside's fanzine collections, I have been unable to locate Searles's objection to the Winter 1944 issue of *Light* in his own words. This information comes from the *Fancyclopedia 3* entry on Searles.

While Croutch concedes that the drawings perhaps were in poor taste, he reframes the argument as a question of "blackmail" and, ultimately, of censorship. This neatly side-steps Searles's original objection as well as any others readers might have raised. It also adds a political dimension to the debate by comparing Searles's response to the repressive tactics used by Hitler. Feminist issues, however, are seemingly irrelevant to the discussion. Instead, two men debate the proper balance of "freedom" and "control," over a naked, faceless, and voiceless female form. Croutch closes his long article on the subject by stating that "I am wondering how long this League of Nation of fen [fans] will continue to sit aside and allow this aggressor to kill one of the freedoms for which thousands of our soldiers are dying on the battleground for to defend?" (24). Ignored by both Searles and Croutch is that such arguments suggest that women's only place in the science fiction community is as objects of desire or as expressions of a (male) fan's artistic freedoms.

Other fans rallied to Croutch's defense. Bob Gibson, a reader of *Light*, argues that "You started to cut out the nudes, realized you were pandering to the taste of only part of the readers. Then your artistic honesty rebelled at being driven, and you put 'em back" (22). Who these readers are is not explicitly stated, but Gibson's comments do seem not consider how such drawings might be viewed by female readers. He further encourages Croutch not "…to be apologetic or defensive about either using them or not using them. 'A' likes them, 'B' doesn't. You can't please both at the same time. Don't apologize to either. Publish what you want to. I call nudes and related stuff waste of space, true enough- but you've got plenty of other customers to look after" (B. Gibson 22). Although

Gibson does not specify why he finds such illustrations a "waste of space," this statement suggests that he does not see sex as relevant to science fiction. The space such images take up could be better used for "serious" topics. As I discussed in Chapter 1, "sex" was often equated with "women" in the science fiction community. That women, even as objects of the heterosexual male gaze, are "a waste of space" implies that they do not belong in science (fiction). These arguments also work to separate women from even the discussion of (fictional) science and technology.

Gibson's letter also reframes the problem as a matter of personal taste. Some fans will like nudes, some will not. Others who objected to the nudes also focused on the question of if such illustrations were "tasteful." William F. Temple, for example, did not care for the illustrations and suggests instead "…something comparable with Jane [An English comic-strip character who periodically sheds her clothes for the delectation of the readers- ED] or Varga or the work of Harry Turner…" (20).[64] It is not illustrations of naked women Temple finds objectionable but rather that these particular ones were not up to his standards. His comment reinforces the belief that women are objects of the desiring heterosexual male gaze. It also assumes that (male) readers would be interested in a female character whose main attribute is the "periodic shedding of her clothes." The debate was resolved when Searles was driven out of the FAPA on charges that his objections to the Winter 1944 issue of *Light* were attempts to censor the artistic freedoms of others. Other zines that featured nudes did not face such objections, and the reactions to the illustrations in *Light* point to a widespread acceptance of women as erotic objects

[64] The text inside the square brackets are Croutch's editorial comments within Temple's letter.

in science fiction. Despite the socio-political effects of new science and technologies during this period, the characterizations of women expressed by *Light* and its readers argue that the roles of women in patriarchal society will remain unchanged. The feminine will remain subordinate to the masculine even as men integrate more fully with machines.

Published from the fall of 1947 to the summer of 1951, *The Fanscient*, edited by Donald B. Day, included illustrations featuring naked women in every issue. However, it did not face the same objections that *Light* had only a few years earlier. *The Fanscient*'s nudes occasionally appeared on the cover (Figure 10), but they were most common in two long-running series. The first series was composed of illustrations for *The Rubaiyat of Omar Khayyam*, which Day had also illustrated for a book publication. Although these drawings occasionally include men, the majority feature at least one dark-skinned woman wearing little, if any, clothes (Figure 11). As such eroticized scenes are not necessarily central to the narrative of

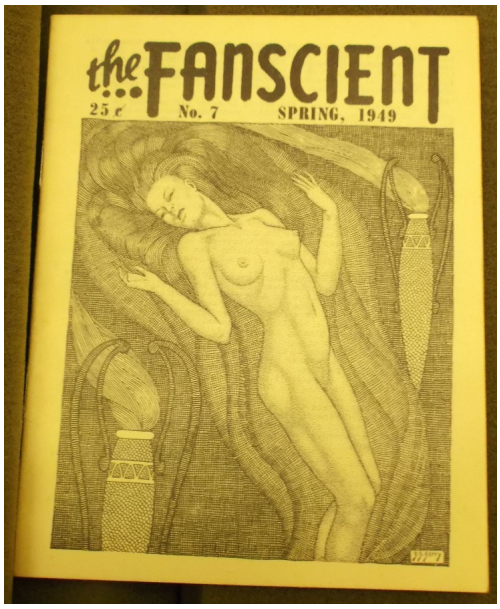

Figure 10 Cover of the Spring 1949 issue of *The Fanscient* (Berry).

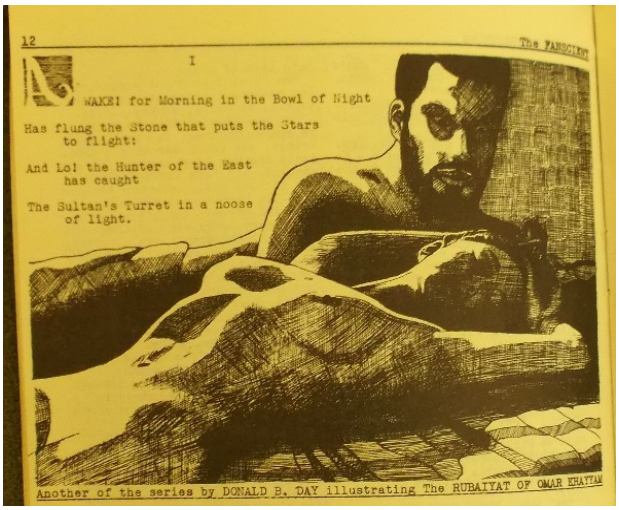

Figure 11 Illustration for *The Rubaiyat of Omar Khayyam* which appeared in the Spring 1948 issue of *The Fanscient* (Day 12).

the poem, these illustrations suggest that they were commonplace occurrences in the "exotic" world of eleventh century Persia. Thus, these illustrations not only position women as objects of male desire, they additionally position non-Westerners as exotic/erotic Others.

The second series of illustrations of naked women began in the Summer 1948 issue of *The Fanscient* and focused on female characters in myths and legends. The first installment, "Pyscholorelei," features an illustration of a woman half-covered in a robe; both breasts and the curve of her butt are clearly visible to the viewer (Figure 12). The text of the accompanying poem includes lines that describe how the moonlight "…etch[es] a travesty / Of love / On your lust-corroded / Face" (Atlas 14). It also links the legend of Lorelei with that of the Sirens and the illustration further ties the figure to Medusa. Pyscholorelei is thus an amalgamation of the monstrous and dangerous allure of several sexual, desiring women. The next figure in the series is that of the Celtic goddess, Holda. In this illustration, there is no concealing robe and the main female figure's breasts and pubic hair are clearly visible (Figure 13). The non-fiction essay alongside the illustration focuses on the "lusty" nature

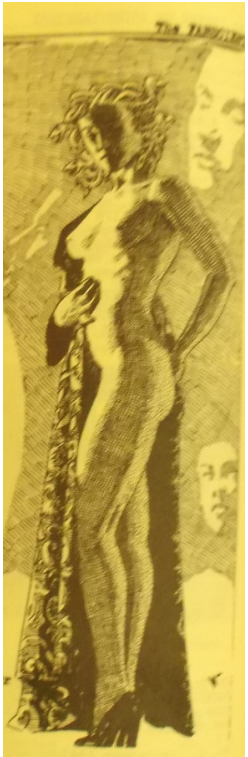

Figure 13 Illustration for "Pyscholorelei" (Waible 14).

Figure 12 Illustration for "Out of Legend: Holda" (Eaton 9).

of the priestesses of Holda (Eaton 8). It further notes that Holda's priestesses participated in "Secret rites of a Dionysiac character [which] dictated that a spying male be torn literally limb from limb, so our records are meager" (Eaton 8). This suggests that documentation provided by (spying) male historians is crucial for the preservation of knowledge. It further implies that the methods used by Holda's priestesses to store and transmit knowledge were inferior to those used by men because their records did not survive. Other installments in the series focus on the dangerous, seductive figures of Lilith and Ishtar, both of whom are dangerous precisely because they are seductive.

No explanation or rationale was given for publishing either series of images. Their inclusion was perhaps due to their (vaguely) fantastical nature and links to myths and legends. The lack of justification suggests that the zine's editor, Donald Day, did not see the images as problematic nor did he think his readers would object to their publication. *The Fanscient* did not publish letters from readers, so it is difficult to know exactly what they thought of such features. It seems likely, however, that the two long-running series would have been discontinued if they had proved too unpopular with readers. Originally published by The Portland Science-Fantasy Society, *The Fanscient* raised the club's profile enough that it was successful in its bid for the 1950 World Science Fiction Convention. This suggests that the zine was widely read and had achieved enough respect that members of the larger science fiction community felt that its sponsoring organization could run a successful world convention. The inclusion of such images in the popular *Fanscient*, perhaps unintentionally, reinforces normative attitudes that suggest that women in science fiction are there to be gawked at by the male

members of the community and are not there to support their own interests in the genre. Although appearing in a science fiction fanzine, these illustrations also portray women in non-scientific contexts. They are thus literally and figuratively separated from discussions of (masculine) science and technology.

Women in Science (Fiction)

A key part of the cultural project of reinstating gender norms in the postwar period was minimizing the importance of women outside the home. For women who continued working, professional employment was seen as opposed to their "natural" roles as wives and mothers. An excellent example of this is Dr. Susan Calvin, who appears in several of Asimov's *Robot* stories.[65] A brilliant scientist in her own right, Calvin's important role in the development of robotics seemingly demonstrates that women are more than capable of being experts in the sciences. But this progressive portrayal of women and science is undercut in several ways. When Asimov's *Robot* stories were collected for publication in book form in 1950, they were connected by a frame narrative in which a young (male) reporter interviews Dr. Susan Calvin about the history of robotics. The primary narrator of the novel, then, is not Dr. Susan Calvin, but the male reporter. He is the one who will tell her story to the world, rather than Dr. Calvin speaking for herself. Furthermore, Calvin never marries and is described as being "plain" more than once. The one person who Calvin develops romantic feelings for in "Liar!" (published in 1941) does not return her interest and marries another woman without ever

[65] Dr. Calvin appeared in "Liar!" (May 1941), "Escape!" (Aug. 1945), *Evidence* (Sept. 1946), *Little Lost Robot* (March 1947) and *The Evitable Conflict* (June 1950). She also is a character in several of Asimov's later *Robot* stories.

realizing that Calvin had been pining for him. This underscores the belief that single elderly women are spinsters who failed to find husbands rather than individuals who chose not to get married. Calvin continues working at U.S. Robots until her seventies and remains "alone" until her death, which suggests that, for women, a marriage and a career are incompatible. Calvin had a brilliant career only because she did not get married. Male scientists in Asimov's *Robot* stories, however, seem to have little trouble finding life partners or balancing work and family obligations. This conforms to gender norms, especially in the postwar era, which dictated that women should give up paid employment upon marriage in order to focus their energies on domestic concerns.

Although many women continued in the workforce after the war, Elaine Tyler May notes in *Homeward Bound* that "Nearly all the 'men's jobs' filled by women went back to men when the war ended" (59). This was especially true for recently married women who were expected to focus on their domestic responsibilities. Examples of women who left their careers upon marriage can be found throughout popular literature of the late 1940s. A particularly interesting example is the character of Ruth Forester in *...And Searching Mind*. Ruth was a skilled computer technician who met Clay Forester when she arrived at the Starmont research facility to troubleshoot the computers installed there. In the novel version, she is described as "Briskly efficient" (Williamson *Humanoids* 14). She soon identifies the problem as the human operators and insists that Frank Ironsmith be put in charge of the computing section. Clay is reluctant to follow her advice because Ironsmith lacks the proper academic qualifications, but "…Ruth would admit no choice, [so] he agreed…" (Williamson *Humanoids* 14). The serialized version

includes an additional description of Ruth by a Starmont guard. He tells a similar story about Ruth's work in Starmont's computing section, but the guard adds that "'…Frank [Ironsmith] could do the work, all right. As soon as Ruth showed him how, he could get out six times as much work as all that staff did, and never seem to try'" (Williamson *Mind* 10). In both versions, Ruth is a no-nonsense expert who is not afraid to stand her ground in the face of masculine disagreement. The serialized version also makes it clear that Ironsmith owes his skills with computers to Ruth's instruction. He may have had a talent for mathematics prior to her arrival, but computers require their own special expertise, one which Ruth had mastered long before any of the brilliant men in the novel had done so.

All of this, however, takes place before the narrative proper begins. In both versions, Ruth is an unhappy wife when *...And Searching Mind* opens. She left her job at the computer company when she married Clay Forester, and while she is clearly bored by her current life, the real source of her unhappiness is a lack of emotional connection with her husband. Their honeymoon is interrupted by a development in Clay's scientific work which sets the pattern for their marriage. By the time the readers meet Ruth, she is described as "Still only lightly touched with time and disappointments, Ruth had tried to accept his secret mistress [Clay's scientific project] cheerfully, and she tried to fill her empty days" (Williamson *Mind* 20). She gets an office job in the Starmont research complex, but despite her demonstrated skills with computers, she does not work in the computing department but rather works as an office manager. It is not clear if this was the only opportunity open to Ruth at Starmont, but given her background, it is surprising that

a more technical position was not made available to her, especially as her husband is Starmont's head scientist. That this is not the case suggests that office work, rather than scientific work, is more "appropriate" for married women, even brilliant ones. The narrative makes it clear that Ruth did not seek employment because the Foresters needed the extra income or because she missed professional employment. Instead, it is "to fill her empty days" and is clearly the second choice to being a full-time housewife and mother.

The editorial apparatus of *Astounding Science-Fiction* also stressed that women were more concerned with domestic issues than with science and technology. In 1949, *Astounding Science-Fiction* conducted a poll of its readers and published the results in the July issue. The reader profile constructed from the almost 3,000 completed surveys is of young men who are "…just under thirty, have a college degree, and have been reading the magazine about eight years" ("Analytical" July 1949 161). Campbell additionally notes that the average reader of *Astounding Science-Fiction* is "…pretty definitely *Mr.* Reader—93.3% certain, anyway" (emphasis in original, "Analytical" July 1949 161). Campbell's survey, however, overlooks a crucial detail in his gender breakdown of *Astounding Science-Fiction*'s readers: the survey is only of those who filled out an enclosed postcard and mailed it to the magazine. Given the marriage rates of the time, most adult women likely lived with their husbands. If those men were also science fiction fans, the couple almost certainly shared the same copy of the magazine. This theory is further supported by the letters which regularly appeared in *Astounding Science-Fiction* written by male fans who also report their wives' opinions of the issue in question. It is quite possible that when asked to fill out the survey, male readers in such marriages filled

out the single enclosed card with only their own demographic information. Thus, Campbell's figures almost certainly underreport the number of women actually reading *Astounding Science-Fiction*, and science fiction in general, during this period. However, Campbell continued to refer to female readers whose letters appeared in *Astounding Science-Fiction* as part "…of the 6.7%" for several months after the survey results were published (*Astounding* Sept. 1949 154). Although perhaps unintentionally, this emphasis on the relatively small number of female science fiction readers implies that science and science fiction are "naturally" masculine domains of little interest to women.

Yet women were a visible part of the science fiction community throughout the 1940s. In the case of *Astounding Science-Fiction*, letters by female fans frequently appeared in Brass Tacks. A woman by the name of Margaret McIntyre, for example, regularly contributed to the Analytical Laboratory results and had several letters published in Brass Tacks in the years following the war. Another female fan, Ursula C. Whitt, wrote in specifically to make Campbell aware of what the "'…average woman-on-the-street' wants out of her science fiction" (147). Whitt's statement suggests that "average" women *are* interested in science (fiction) and they have definite opinions on the subject. Whitt is careful to state in her letter that she has been reading *Astounding Science-Fiction* "…for a countless number of years….and I have established a reputation among my friends as being an expert on rocket-ships, time travel, and probability measurements" (147). This is clearly not a casual fan but rather one who is knowledgeable of the genre and who is not afraid to express her opinions about it in a public forum. Whitt further states that it is these qualifications, rather than her gender,

that give her "…the right to criticize the latest issue of Astounding—October 1948" (147). She then proceeds to do so at some length, focusing especially on van Vogt's *The Players of Ā*.

A few months later, Brass Tacks featured a letter responding to Whitt written by another female fan, Eugenia L. Herman. Her objections to Whitt's earlier letter are two-fold. First, Herman enjoyed *The Players of Ā* and argues that is "…one of the best serials you've had in the seven years I've been a reader" (154). Like Whitt, Herman also makes it clear that she is a long-time reader of *Astounding Science-Fiction*. This establishment of science fiction credentials was not uncommon in letters by first time writers to *Astounding Science-Fiction*, both men and women.[66] But the real reason Herman has taken her "…untrustworthy typewriter in hand [is] to register a protest against Ursula Whitt's assumption…that her taste is completely representative of that of all of your women readers" (154). Neither Whitt nor Campbell had claimed that her letter was "completely representative" but it is still significant that Herman felt it was important that *Astounding Science-Fiction* not only get the female perspective on the magazine but that there be a diversity of such perspectives so as to better reflect the magazine's readership. Women may have been a relatively small portion of *Astounding Science-Fiction*'s readership, but they also clearly saw themselves an important part of the science fiction community whose opinions deserved equal consideration alongside those of the male members of the community. Although letters from female fans had appeared in *Astounding Science-Fiction* during the war, their increased numbers after the war

[66] Howard Kaninsky and Richard C. Hyatt, for example, make similar rhetorical moves in their letters in the October 1948 and March 1949 issues of *Astounding Science-Fiction* respectively.

underscore that attempts to (re)contain the feminine separately from science (fiction) was ultimately impossible.

Female fans were also represented in fanzines. Letters from female fans frequently appeared in *VoM* discussing a variety of issues. The most regular of these, Tigrina, was an officer in Los Angeles Science Fantasy Society (*VoM*'s sponsoring organization) and was also mentioned several times in *The Fanews*,[67] both of which suggest that Tigrina was a well-established fan in her own right. Women are also included in the photographic coverage of both the 1949 and 1950 World Science Fiction Conventions in *Bloomington News Letter*.[68] Women are also present in *The Fanews Photo Album* (published in Dec. 1945) in both the general section and the section covering fans in the armed services. In the case of the 1945 New England Fan Convention, a female fan, Doris A. Currier, was one of the organizers and co-hosts. Currier's report on the convention was featured in *The Fanews*, which also noted that she was the editor of her own zine. Although female fans were outnumbered by their male counterparts, they were still visible members of the science fiction community.

The Fall 1945 issue of *Light* also highlighted female science fiction fans. Aside from the editorial written by Croutch and some of the reader letters, the entire content of the issue was written and illustrated by women. One such feature was Jessie E. Walker's review of *The Story of Atlantis* by William Scott-Elliot. Walker notes that while she

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[67] *The Fanews* was a newsletter-style zine that reported on news related to the science fiction community.

[68] The 1949 World Science Fiction Convention was covered in "Science-Fiction Marches On!" Photographs from the 1950 World Science Fiction Convention were published in "Portland Convention Pictures."

> …found this book very interesting. Some of his [Scott-Elliot's] ideas seem rather odd in view of present day circumstances. He thinks some of the races quite depraved because the women aided their men-folk in battle. This sounds rather Victorian- when a lady should only 'sit on a cushion, and sew a fine seam'. The female of the species has always been more deadly than the male when her home or offspring were threatened. (9, 15)

While Walker's review still links women to the domestic sphere, it also makes it clear that women are capable individuals and those qualities should be reflected in (fantastical) fiction. Although Walker's review is not necessarily a strongly feminist reading of Scott-Elliot's 1896 novel, her opinions suggest that, despite postwar retrenchments of gender norms, restricted views of women's abilities were already seen as outdated. While women may have lost ground in terms of gender equality during the postwar period, their wartime experiences were not forgotten. Women could, and did, participate in traditionally masculine realms before, during and after the war. Walker's review points to a (tentative) cultural awareness of this fact.

Subsequent issues of *Light* treated the all-female issue like any other. Readers' comments focused on the content of the issue, and Jessie Walker continued to be a regular contributor to the zine. There was also no debate about women in science (fiction) like the one seen in the pages of *Astounding Science-Fiction* before the war (discussed in Chapter 1). This is not to say that the science fiction community had become entirely gender neutral; as I discussed above, there were numerous instances in which women were treated like eroticized objects and their role in science (fiction) minimized. But

while women remained a minority in the science fiction community, they had also clearly established themselves as members of that community.

Alongside the increased visibility of female fans, the postwar period also saw more female authors appearing in the pages of *Astounding Science-Fiction*, many of whom would go on to have long and productive careers. The three female authors I consider here—Judith Merril, Wilmar Shiras, and Katherine MacLean—all debuted in *Astounding Science-Fiction* under their own names and in the case of Merril and MacLean, names which were clearly female.[69] Although these women were not the first female authors to appear in *Astounding Science-Fiction*, they do mark an increase in female authorship in the magazine's pages during the latter half of the 1940s. The stories these women published during this period also engaged with issues of gender, although not always in the same ways or with the same results.

In addition to the fans' reactions discussed above, Judith Merril's first story in *Astounding Science-Fiction*, "That Only a Mother," has also received significant attention from scholars. In *Galactic Suburbia*, Lisa Yaszek argues that Merril's story demonstrates how "…the chain reaction of the atom bomb extends even further than we might already think: the insanity of nuclear war leads to an insane mode of fatherhood based on militaristic thinking about 'organized, deliberate death' rather than love and protection. This, in turn, leads to a literal insanity 'that only a mother' can fully experience or understand" (116). In this reading, Margaret's refusal to acknowledge her child's

[69] Wilmar Shiras published under her own name but it is not one readily identifiable as feminine. Although Campbell referred to Shiras as a "her" in his commentary on the Analytical Laboratory results for the November 1948 issue (Feb. 1949 146), many readers continued to refer to Shiras as "Mr. Shiras" in their letters. This is likely because Shiras's first name was only one letter different from the masculine name "Wilmer."

differences is contrasted with her husband's horrified reaction to those differences. Jane Donawerth's analysis in *Frankenstein's Daughters: Women Writing Science Fiction* focuses on the implications of how "That Only a Mother" shifts between Margaret's point of view and that of her husband, Hank. Donawerth argues that Hank "sees his child as damaged goods and destroys her in revulsion. Margaret, the mother,…loses touch with social reality in order to make another reality that accepts her child, but then is not prepared to protect her from the father" (133). I would like to extend these two readings to suggest that Merril's story interrogates gender norms by illustrating the effects of the repressive use of (masculine) scientific expertise.

At least at first, "That Only a Mother" seems to conform to the idealized gender roles popular in postwar America. Even before the arrival of her baby, Margaret is a full-time housewife supported by her husband. Hank's job prevents him from being present for the baby's birth and the first few months of the child's life. While Margaret misses her husband, the narrative does not treat his absence as anything extraordinary. Hank's unremarked absence during this crucial time of his child's life implies that men are not essential to the process of raising children. Despite being a first-time mother who is largely on her own, Margaret also seems to have little trouble adjusting to the physical demands of motherhood. This supports traditional gender norms that saw women as "naturally" good with children. Finally, even before the story's final twist reveals that the child lacks arms and legs, it is clear that she is not "normal." Margaret's refusal to admit that her child is anything other than "…fine. Precocious, but normal" can be read as evidence that she has suffered a hysterical break that has lead to a disassociation from

reality (Merril 218). Hysteria has been traditionally framed as a feminine mental disease and one which all women are potentially prone to developing.

There are hints, however, that Margaret is aware of her child's differences. For example, when Hank first tries to pick up the baby, Margaret attempts to stop him, perhaps to prevent him from discovering the truth about their child. Furthermore, Margaret's strongest proclamation that "…MY BABY'S all right" comes shortly after reading in a newspaper that "'Only 2 or 3 per cent of those guilty of infanticide are being caught and punished in Japan today'" (emphasis in original, Merril 218). This suggests that she is aware that her baby's differences might trouble her husband once he discovers them. Her reassuring mantra can be read, not as denial that her child is different, but rather an expression of hope that her husband will not be like other, murderous parents. The child will be safe from her father and, therefore, will be "all right."

Regardless of Margaret's mental state, her refusal to treat her baby as anything other than normal represents a love and acceptance of difference which Hank is unable (or unwilling) to share. As part of the military-industrial complex, he can only think in terms of "us" versus "them." Since the baby is not like "us," she must be one of "them," and thus must be destroyed. As a scientist, Hank is also linked to "the cult of expertise." The postwar era saw an increased reliance on expert advice for a wide range of issues, chief among these was the "proper" rearing of children. Every step of the process of bearing and raising a child had to be carefully managed according to the dictates of (white, male) experts in order to produce healthy, well-adjusted adults. Merril's story, however, suggests that such expert advice may be misguided. Hank, with his scientific

perspective, can only see the child as abnormal and therefore in need of "correction." Margaret, however, sees her child *as* a child. The child is different, but she is not presented as a threat to either her immediate family or to society at large. Margaret's ability to accept her child despite her differences is contrasted with Hank's refusal to do the same. That Hank's attitude may lead to the death of an innocent child ultimately suggests that (masculine) expertise may be far more damaging than (feminine) love and acceptance.

The first installment of Wilmar Shiras's *Children of the Atom* series debuted only a few months after Merrill's "That Only a Mother." The second entry in the series, *Opening Doors*, published in March 1949, examines the nature of "feminine" and "masculine" knowledge. Unlike "In Hiding," which focuses on the experiences of a teenage boy, *Opening Doors* introduces Elsie Lambeth, a young woman who shares Tim's mental abilities. Tim and Dr. Welles first meet Elsie in a private mental asylum. The head of the hospital tells Dr. Welles that Elsie is not dangerous or violent. Instead, she was institutionalized because she was "'completely unmanageable'" (Shiras *Opening* 40). She would throw "'Tantrums, alternating with fits of depression and sullen spells. Abusive language—said everyone was stupid'" (Shiras *Opening* 40). Unlike Tim, Elsie did not hide her abilities. She told adults if they were wrong or foolish and became angry when she was ignored. Under the hospital's care, she now "'…cleans up her room and makes her bed and all that, she has learned several kinds of handwork, sews nicely—makes some of her own clothes—she helps with the gardening, and she knows how to talk politely now'" (Shiras *Opening* 42). More specifically, Elsie has been taught to

"'…talk like a lady'" rather than expressing her opinions of other's foolishness (Shiras *Opening* 42). In short, Elsie failed to behave like a "proper" young lady before coming to the hospital. Her improvement, according to the experts, is measured by her adoption of typical feminine behaviors. The contrast between Elsie and Tim's experiences suggests that Elsie has no one but herself to blame for her institutionalization. Tim carefully observed his environment and concluded that the best course of action was to hide his intelligence. By doing so, he has been able to remain relatively free and even establish a relationship with an adult ally. Elsie, meanwhile, appears to have been guided more by her emotions, namely frustration and pride, rather than by a logical assessment of the situation. Here and elsewhere, Tim and Elsie's abilities and reactions to their environment follow gender norms: he is more analytical while she is more emotional.

The contrast between the two children is further highlighted as Tim and Dr. Welles learn more about Elsie. After spending time with Elsie outside the asylum, Tim tells Dr. Welles that:

> "She looks at things in a different way…. She wants to know what things mean, and I want to know what to do about things…. She remembers sciences as if they were poems or pictures, and thinks about the significance of these things; but I remember the way things work, and think about inventions and social service and things like that, things she doesn't care about. I think of what practical use things are, and the theory of them." (Shiras *Opening* 57)

Tim's interest in science and mathematics and Elsie's interest in language and the arts follows gender norms which saw the sciences as more masculine and the arts as more

feminine. The two children are clearly framed as foils for one another and the differences in their interests and mental expertise naturalizes such gendered divisions of knowledge. *Opening Doors* makes it clear, however, that Tim and Elsie's aptitudes are complimentary. Tim acknowledges this in his assessment of Elsie's abilities: "'We both have a lot to teach each other….in some ways she is much more practical than I am. She thinks about the philosophy of things and how they fit into the whole concept of everything'" (Shiras *Opening* 57). It is interesting that Elsie's more philosophical approach to problems is described as more practical than Tim's scientific approach. It suggests that such knowledge is necessary to truly understand how the world works. It also acknowledges the importance of considering the social contexts of science and technology. Furthermore, this positions Elsie on equal footing with Tim; her abilities are just as valuable and extraordinary as his are. Although still conforming to gender norms about the nature of men's and women's knowledge, *Opening Doors* suggests that both are equally necessary and important.

But the novella's reliance on a normative division of knowledge remains problematic. Added to this issue is the fact that many readers of *Astounding Science-Fiction* believed Shiras to be a man. For those readers especially, *Opening Doors* largely conforms to gender norms which have men as narrators and "naturally" good at math while women are "naturally" more inclined to emotional expression via literature and art.[70] But it is still significant that Shiras is a female author publishing under her own name in a leading science fiction magazine. While her texts may not be as feminist as

[70] All three installments of *Children of the Atom* published during the 1940s have Dr. Peter Welles as the narrator.

those of Judith Merrill and Katherine MacLean, Elsie in *Opening Doors* helps demonstrate that intelligent women belong in science fiction's imaginings of the future.

Katherine MacLean's short story, "And Be Merry…," has also received scholarly attention since its publication in the February 1950 issue of *Astounding Science-Fiction*.[71] Lisa Yaszek, for example, reads it as a reimagining of Mary Shelley's *Frankenstein* and argues that the story's main character "…will escape the tragic fate of Victor Frankenstein and realize her dream of leading humanity toward godhood" (185). Much like *Frankenstein*, the story is told in an epistolary fashion as Alexander Berent listens to recordings left by his wife, Helen. Alex, an archeologist, returns from a months-long expedition to find his wife missing. He soon locates a series of letters and audio recordings she left for him which detail her own scientific research project. An endocrinologist, Helen believes she has developed a cure for aging. Because the procedure is a drastic one, Helen concludes that "'There is nobody I dare try it on except myself'" and while Alex was away she does just that (MacLean 84). The experiment is successful and Helen soon looks and feels twenty years younger.

But the procedure has an unexpected side effect: Helen becomes obsessed with avoiding illness and accidents. It eventually becomes so severe that she is institutionalized for anxiety and paranoia before Alex is able to locate and free her from her obsessions. This final "rescue" of a damsel in distress by a male hero is one of several elements of "And Be Merry…" that seem to follow expected gender norms. Early in the experiment, Helen tells Alex that "'the minute I stray off the straight and narrow track of

[71] "And Be Merry…" was later republished as "Pyramids in the Desert."

formulas, my reports get so chatty they read like a gossip column. It's hopeless'" (MacLean 83). She suggests that Alex "'…write in the explanatory material yourself, from what I tell you…. You write better anyhow'" (MacLean 83). Although the text does not specify why Alex is the "better" writer, the contrast with Helen's self-described gossipy style suggests that he is better at the disinterested, analytical style of writing favored by science. Furthermore, Helen's decision to experiment on herself violates the basic tenet of science that dictates that the experimenter must simply report on observed phenomena. Helen, however, not only is the subject of the experiment as well as the experimenter, she frequently describes how she feels about the experiment and its results. That her most prevalent emotion about the process is anxiety also follows gender norms that see women as always on the verge of hysterics. But like Merril in "That Only a Mother," MacLean uses her narrative to challenge many of these gendered assumptions.

Three decades before Donna Haraway argued for the importance of situated knowledge, Helen is already aware that "There is no unmediated photograph or passive camera obscura in scientific accounts of bodies and machines" (Haraway "Situated" 583). By using her own body to test her theory, Helen will be able to detect subtle physiological changes that might go unnoticed by a third-party observer. As an expert in her field, Helen is well qualified to monitor the processes as they occur. Helen is also an ideal candidate for the procedure due to her age. She tells Alex that at thirty-eight, "'I am not so old and fragile that I would break down under the first strain, but I not so young that a little added youth won't show'" (MacLean 84). Furthermore, as Helen notes in a letter to Alex, science is often about taking risks. If Alex is willing to be exposed "'…to

cliffs, swamps, man-eating tigers and malarial mosquitoes, all in the name of Archeology, I [Helen] have…[a] right to stick hypodermics into myself in the name of Endocrinology'" (MacLean 82). This statement appears in Helen's first letter to Alex and it establishes early in the narrative that Helen is a scientist on equal footing with her male colleagues.

And while Helen's letters to her husband may be chatty, it is also clear that she is taking careful scientific notes on the effects of the experiment. She ends one audio recording to her husband by telling him that "'I've got to switch back to the notes and hours record now and take down my pulse rate, irritability level, PH and so on…. I'll give you another record soon'" (MacLean 87). This suggests that while Helen does not want Alex to worry about her, the scientific rigor and accuracy of the experiment comes first. Finally, Helen's anxiety about illness, accidental injury and death is not entirely irrational. The process Helen develops can repair damaged cells and restore youthfulness, which means that injury and illness are the only things remaining between human beings and healthy immortality. Thus, Helen has good reason to be concerned about such threats. The doctors at the hospital where Helen is held try, and fail, to "cure" her by treating her as a (feminine) hysteric. Alex, meanwhile, appeals to Helen's ability to reason logically and scientifically to free her from her anxieties. He points out that, regardless of what advances science makes, death will come for all biological creatures eventually. This appeal to Helen's scientific nature is successful and her mental equilibrium is almost instantly restored. The narrative's final scene, then, is not one in which the damsel is rescued by a male hero but rather illustrates the intellectual give and take that

characterizes scientific knowledge. Science is not produced by an individual working alone but by groups of scientists working together to develop and test theories. The scientific and emotional (re)union between Helen and Alex at the end of "And Be Merry…" suggests that science needs both men *and* women to be truly productive.

While none of the texts profiled in the final section of this chapter are necessarily strongly feminist works, they all resist gender norms by demonstrating the pitfalls of a patriarchal worldview. Merril's story highlights the disastrous consequences of sidelining woman and their knowledge while both Shiras and MacLean demonstrate the importance of female knowledge production to advancements in science and technology. Of the three women profiled in this section, both Merril and MacLean continued to publish (and in Merril's case, to edit), science fiction for decades to come. Both continued to explore how science (fiction) and technology are embedded in larger social systems, although they did so in different ways. These authors' early efforts, however, do not represent a radical break with earlier, more masculine science fiction. The community's attempts to (re)contain women away from science (fiction) points to patriarchal anxieties about changing gender norms. As we have seen, women had been members of science fiction from the beginning of the genre. Yet, many science fiction narratives continued to rely on sexist tropes long after the 1940s. Women also continued to be outnumbered in the science fiction community and many fan productions often failed to consider the importance of gender diversity. However, the increased visibility of women, both as fans and as authors, during this period helped lay the groundwork for social movements that would reshape the genre in the coming decades.

CONCLUSION: THE IMPORTANCE OF ARCHIVES

Many of the texts I discussed in this dissertation exist only in the pages of *Astounding Science-Fiction*. Although some academic libraries have complete runs of *Astounding Science-Fiction* and other contemporary science fiction magazines, many more do not. As I discovered one summer, this second group includes the British Library. War-time restrictions of paper meant that the issues of *Astounding Science-Fiction* published in the U.K. during World War II were often incomplete, and the British Library never acquired the complete American versions of the magazine for these years. That such a significant library does not have a complete run of an influential science fiction magazine from the Golden Age of science fiction highlights the scarcity of such materials. Even while working with the University of California, Riverside's extensive science fiction collection, I often had to deal with seventy year old pulp paper that would crumble at my touch. Although these materials are currently publically accessible, there may well come a time when such items can only be safely handled by trained personnel. Such restrictions not only affect scholars of science fiction, they also limit the public's awareness of the long history of science fiction and its engagement with evolving understandings of the (gendered) human Self and its relationship with science and technology.

Texts familiar to contemporary readers are often enriched by examining them in their original publication contexts. Editorial descriptions of individual stories which appeared in the Table of Contents and as brief blurbs before the narrative proper shaped the subsequent reading experience. They told readers if a particular narrative would be

about robots, mutants, aliens or by a well-loved author. For example, Isaac Asimov's short story from the *Robot* series, "Liar!," was preceded in *Astounding Science-Fiction* by a teaser claiming that it is "A beautifully logical tale of a robot who simply couldn't tell the truth!" (*Astounding* May 1941 43). This description not only informs readers that the story will be about a robot, but that the truly remarkable thing about the narrative is its logical nature. This both appeals to science fiction's love of logic and hints that readers will be presented with a paradox of sorts. How can a logical machine not accurately report reality? Read on and find out! This teaser also means readers of *Astounding Science-Fiction* were aware that the robot at the center of the tale is lying before the characters do. This shifts the reading experience from one of figuring out the puzzle along with Dr. Susan Calvin and her colleagues to seeing how scientists' assumptions blind them to the truth about the robot.

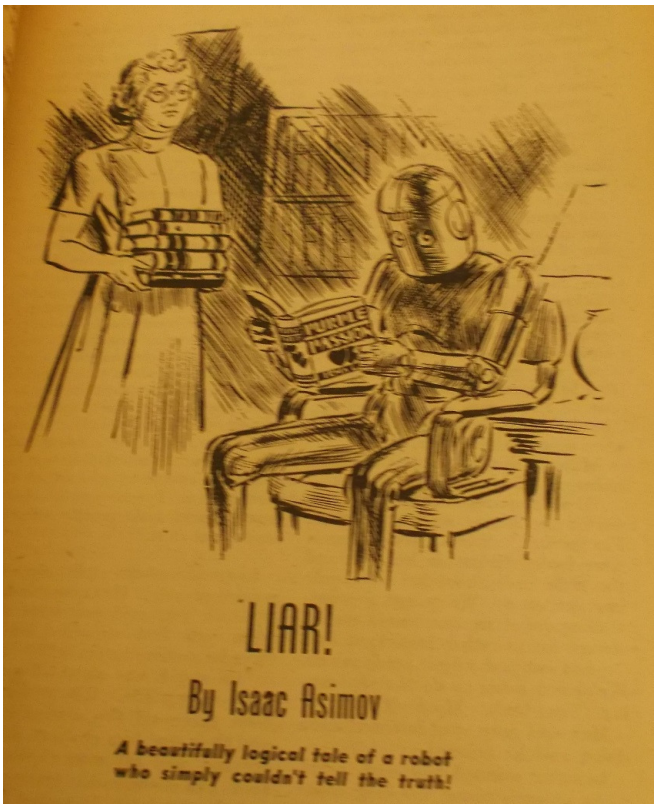

Figure 14 Title illustration by Charles Schneeman for "Liar!" which appeared in the May 1941 issue of *Astounding Science-Fiction* (43).

"Liar!" is also paired with an illustration of a displeased woman (likely Dr. Calvin), bringing books to a robot. These are not just any books, however, they are romance novels. As I discussed in Chapter 1, many in the science fiction community saw love and romance

as having nothing to do with logical science and technology. Their appearance before Asimov's "beautifully logical tale" suggests that the robot's preference for such "trash" is a sign of the flawed nature mentioned by the teaser. The disparagement of "romances" was also used by the science fiction community as a justification for the absence of women in genre texts. Female characters, it was argued, meant love and romance rather than cold, logical (masculine) science. The presence of Dr. Calvin, despite her disapproval, in this illustration links her to the belief that women equal romance. That this story is the only one in the series that portrays Dr. Calvin in love further strengthens this impression, especially as her attempts to appeal to her love interest are portrayed as both farcical and demeaning. (Feminine) emotions, it seems, have no place in science (fiction). Illustrations and editorial statements such as these reveal the themes of interest to *Astounding Science-Fiction* and what its editorial staff thought would appeal to the magazine's readers. Such elements of *Astounding Science-Fiction*'s editorial apparatus can reveal the larger discourses surrounding and influencing individual narratives, but they are rarely republished even when the texts they accompany are. Thus, the only way for scholars to access these materials is in archival collections.

Although many of the science fiction narratives published during the 1940s have been republished, many others have not. Thus, our understanding of the conversations circulating in the science fiction magazines is often incomplete and important influences may be overlooked entirely. Even narratives that have been republished can prove difficult to find. Some were only republished once and reside in obscure editions. Others were once widely available but are now out of print. While writing this dissertation, I

found myself scouring used bookstores in search of elusive anthologies and requesting materials from libraries on the other side of the country. Part of the reason for this piecemeal assemblage of texts is that the contemporary science fiction market is a book market. The transition away from magazines and towards books began at the end of the 1940s. More than just the texts themselves have been lost with the death of the pulps; an entire system of reading has also been obscured by changing market tastes. Although magazines continued to be relevant in the genre's development for many years, today's science fiction readers often expect novel-length science fiction rather than short stories. Modern readers are thus less likely to be interested in collections of short stories so there is little incentive for publishers to produce them. This is especially true in cases when the stories are several decades old and seem decidedly old-fashioned to readers used to iPhones and satellite television. Recovering and highlighting these texts can help reveal how they shaped the genre and continue to influence modern engagements with science (fiction).

Yet for all the challenges of accessing these materials, working with them revealed a treasure-trove of information about the Golden Age of science fiction. More than just lost science fiction tales could be found in the boxes the Special Collection staff brought to me one by one; illustrations, editorial comments, and reader letters all shaped the science fiction being written and published during this period. Campbell's editorials were an especially exciting source of information. Never anthologized or republished, these editorials are Campbell's direct conversation with the science fiction community. His discussion of new scientific developments and suggestions of where they might lead

would often start conversations and debates in Brass Tacks. Campbell also viewed these editorials as an opportunity to inspire ideas for writers to explore in their fiction (*Astounding* Nov. 1948 107). Recovering his part of the conversation is crucial to understanding the larger discourses that circulated throughout the science fiction community during this period.

Awareness of the on-going conversations in the science fiction community is especially important when dealing with fan-produced materials. As I noted in the introduction to this dissertation, the science fiction community was, and still is, an extremely close-knit one. In addition to fans' relationships with genre professionals, well-known authors, such as Isaac Asimov and Ray Bradbury, first encountered the genre as fans. Bradbury even tells Campbell in an April 1939 letter in Brass Tacks that "I'm a writer myself—amateur, so far; give me time—you'll get a barrage of manuscripts before long" (159). Both Asimov and Bradbury began their writing careers publishing in fanzines before moving on to professional magazines. Science fiction authors such as John W. Campbell, Jr. and Judith Merrill also became influential editors. Campbell helped guide science fiction into and through the Golden Age; Merrill did the same during the New Wave. The professional concerns of numerous other authors and editors were likewise shaped by their earlier interactions with the genre as fans. Recovering their early works helps give a more complete history of the genre.

Fans who never became authors or editors also influenced science fiction's development by providing continual feedback and commentary on individual authors, illustrations, texts, and series. Sometimes this influence was direct. The first place winner

of each month's Analytical Laboratory received a bonus on top of what *Astounding Science-Fiction* had paid for the story. This gave authors an extra incentive to produce fiction that would engage the magazine's readers. Fans' comments, both positive and negative, appeared in Brass Tacks, and authors would occasionally respond with letters of their own. Fans' discussions of the genre in zines and at conventions were also noted by professionals in the field. Even when such conversations remained among fans, they would often influence the genre in subtle ways by shaping readers' interests and expectations which would then be reflected in letter columns in professional magazines. And while many of the conversations fans had in their own zines did not deal directly with science fiction, their statements make it clear that science fiction fans saw themselves as a community; a community, furthermore, which belonged to them as much as it belonged to professional authors, editors, and illustrators. Fans are a crucial part of science fictional conversations, but many of their voices have been lost to time. To truly understand the genre, we need to examine the entire science fiction community as a community, rather than as a series of texts.

Many science fiction studies scholars are aware of this need, but they face numerous barriers to conducting in-depth research in pulps and fanzines. As I noted above, not all libraries have complete runs of science fiction magazines. Scholars who do have access to such materials must also work with a genre that is only partially indexed. The indexes that do exist, both digital and paper, are impressive achievements but they are, unfortunately, incomplete. Fan-produced materials are even more difficult to find. Many private collections have long since been lost and today only a handful of libraries

have substantial fanzine holdings. I was fortunate to have access to the extensive science fiction collection at UCR. Unlike scholars at other institutions who are often forced by budgetary and time constraints to spend only brief periods in such archives, I was able to visit it regularly. This gave me the rare opportunity to trace how topics and ideas evolved through a wide range of materials, both fan and professional. Yet even in these ideal conditions, I faced numerous challenges. No comprehensive index of fanzines exists, and many of the fan materials I accessed during my research have yet to be fully cataloged by library staff. In many cases, my notes on a particular zine are the most complete index of its contents that exists anywhere. This state of affairs is not the result of a lack of effort or enthusiasm on the part of library staff. There are simply too many materials and too few staff members to process each item individually. Even when such materials are catalogued and indexed, scholars must still be physically present in the library to access them. Without substantial investments in funds and personnel, digitizing such materials remains little more than a dream.

The recovery of these materials is especially important for better understanding women's roles in the development of science fiction. The 1970s saw the rise of explicitly feminist science fiction with works by authors such as Joanna Russ, Vonda McIntyre, Ursula LeGuin, and many others. WisCon, the first feminist science fiction convention, was first held in 1977 in Madison, Wisconsin and brought together both professionals and fans intensely interested in using science fiction "…to imagine what new institutions, relationships, and culture might look like when women and men stand equal" (Gomoll 6). This rise of feminism, however, occurred alongside a paradoxical erasure of earlier

science fiction by women. This is partly due to the larger project of feminist science fiction authors such as Joanna Russ "…who wished to distinguish older modes of women's speculative fiction from the more overtly feminist SF that developed in the 1970s" (Yaszek 197). But as numerous recent science fiction scholars, including Lisa Yaszek and Justine Larbalestier, have noted, the science fiction written by women in previous decades helped to lay the groundwork for the rise of feminist science fiction in the 1970s. C.L. Moore's Deirdre in "No Woman Born" encounters many of the same issues that Janet Evason does in Joanna Russ's 1972 "When It Changed." Both Deirdre and Janet confront a patriarchal system that wishes to (re)establish control of women who have found a way to step outside the heterosexual matrix. While not directly linked, these texts' examination of similar themes demonstrates the power of science fiction to engage with feminist issues. That the two stories were published almost two decades apart but still address similar themes also speaks to the genre's failure to fully live up to its promise to envision a better, more equitable future.

The neo-conservative backlash of the 1980s and '90s caused many members of the science fiction community "…to close the book on the experiment in feminism and move on to the adventures of mirror-shaded boys hacking into virtual reality" (Gomoll 8). But feminist concerns did not disappear from the genre. While much of cyberpunk focused on "mirror-shaded boys," Melissa Scott showed that women and non-normative others have rooms of their own in cyberspace in *Trouble and Her Friends*. Scott's description of technological immersion as a distinctly embodied experience further worked to subvert posthumanist imaginings of virtual spaces as "free" of the body.

Instead of William Gibson's "'…consensual hallucination….of data abstracted from the banks of every computer in the human system,'" cyberspace becomes a place where "The air…thickens…smelling [of] spice and oil and a bitter tang like vinegar, carried on a virtual breeze…" (Gibson 51; Scott 41-42). This foregrounds the importance of the body in the definition of the technological Self; it also challenges attempts to separate Othered bodies from (white, male, heterosexual) science and technology. Attempts by those unmarked by discourse to claim advanced science and technology for themselves (and to restrict access by Others) predate the texts discussed in this dissertation. But as the decade that saw female war workers, the atomic bomb, suburban technologies, the digital computer and cybernetics, the 1940s is a crucial period in how these discourses were formulated, perpetuated, and, more importantly, how they were resisted.

Today, many more women consider themselves part of the science fiction community than did even twenty years ago. Still, I often find myself the only woman in a group of science fiction fans. As other scholars have noted and I have argued here, women have been part of the science fiction community since the beginning. Yet the young men I encounter at science fiction events are often surprised to meet "a girl who likes science fiction," which highlights the continual (re)forgetting of women's role in the genre's history. Then as now, the female figures who do appear in genre contexts are often framed explicitly as erotic objects designed to appeal to heterosexual young men. This objectifying of fictional women can carry over into real life and news of sexual harassment of female convention attendees is still all too common. Such incidents not only discourage visible female participation in the genre, they also reinforce the notion

that science (fiction) is a male domain that women enter only in certain contexts. That such issues, and the role of women in science (fiction), must be perennially readdressed speaks both to the workings of white, heterosexual, male privilege and the genre's continued self-perception as a male-only domain. Yet the efforts of those who worked to change the genre throughout its history can be seen in the community's ever-increasing openness to those once considered Others. Examining earlier conceptions of the relationship between the gendered human Self and the products of advanced science and technology is crucial for understanding and challenging both the unacknowledged privilege and the persuasive power of posthumanist imaginings of a virtual world of Selves "free" of the restrictions of embodiment that excludes the bodies, and the Selves, of others.

WORKS CITED

"A. Langley Searles." *Fancyclopedia 3*. 20 Jan. 2013. Web. 03 Oct. 2014.

Alberti, Frances. "Finally Convinced." *New Fandom.* Ed. Sam Moskowitz. n.d.: 32. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Nov. 1938: 150. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Feb. 1939: 6. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. April 1945: 178. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Feb. 1946: 116. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. March 1946: 155. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. April 1946: 132. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Nov. 1947: 162. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. June 1948: 146. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. July 1948: 62. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Aug. 1948: 86. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Sept. 1948: 118. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Jan. 1949: 55. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Feb. 1949: 146. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. March 1949: 101. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. April 1949: 162. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. June 1949: 84. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. July 1949: 161-162. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. June 1950: 98. Print.

"The Analytical Laboratory." *Astounding Science-Fiction*. Aug. 1950: 127. Print.

Anderson, Poul. "Quixote and the Windmill." *Astounding Science-Fiction*. Nov. 1950. *The Metal Smile*. Ed. Damon Knight. New York: Belmont Tower Books, 1974. 32-42. Print.

--- and F.N. Waldrop. *Tomorrow's Children. Astounding Science-Fiction.* March 1947. *The Book of Poul Anderson.* Ed. Roger Elwood. New York: DAW Books, 1974. 9-35. Print.

Anger, R.R. Letter to the Editor. *Astounding Science-Fiction*. April 1946: 94-95. Print.

Ashley, Mike. *The Time Machines: The Story of the Science-Fiction Pulp Magazines from the Beginning to 1950.* Liverpool, U.K.: Liverpool University Press, 2000. Print.

Asimov, Isaac. "Escape!" *Astounding Science-Fiction*. Aug. 1945. *I, Robot*. By Isaac Asimov. Greenwich, CT: Fawcett Publications, 1970. 126-147. Print.

---. *Evidence*. *Astounding Science-Fiction*. Sept. 1946. *I, Robot*. By Isaac Asimov. Greenwich, CT: Fawcett Publications, 1970. 147-170. Print.

---. *The Evitable Conflict*. *Astounding Science-Fiction*. June 1950. *I, Robot*. By Isaac Asimov. Greenwich, CT: Fawcett Publications, 1970. 170-192. Print.

---. *I, Robot*. Greenwich, CT: Fawcett Publications, 1970. Print.

---. Letter to the Editor. *Astounding Science-Fiction*. Sept. 1938: 160-161. Print.

---. Letter to the Editor. *Astounding Science-Fiction*. Nov. 1938: 159. Print.

---. Letter to the Editor. *Astounding Science-Fiction*. Feb. 1939: 159-160. Print.

---. "Liar!" *Astounding Science-Fiction*. May 1941. *I, Robot*. By Isaac Asimov. Greenwich, CT: Fawcett Publications, 1970. 84-100. Print.

---. *Little Lost Robot*. *Astounding Science-Fiction*. March 1947. *I, Robot*. By Isaac Asimov. Greenwich, CT: Fawcett Publications, 1970. 100-126. Print.

---. "Reason." *Astounding Science-Fiction.* April 1941. *I, Robot*. By Isaac Asimov. Greenwich, CT: Fawcett Publications, 1970. 47-64. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. July 1938. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. Sept. 1938. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. May 1941. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. April 1942. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. May 1942. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. March 1944. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. April 1945. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. June 1947. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. Sept. 1948. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. Nov. 1948. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. Sept. 1949. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. April 1950. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. Aug. 1950. Print.

Astounding Science-Fiction. Ed. John W. Campbell, Jr. March 1951. Print.

Atlas, Eric. "Psycholorelei." *The Fanscient.* Ed. Donald B. Day. Summer 1948: 14. Print.

"Atomic Power Plant: The Making of the Bomb." *Astounding Science-Fiction*. Dec. 1945: 99-124. Print.

Attebery, Brian. *Decoding Gender in Science Fiction*. New York: Routledge, 2002. Print.

Bade, William. Letter to the Editor. *Astounding Science-Fiction*. Dec. 1948: 107-109. Print.

Balsamo, Anne. *Technologies of the Gendered Body: Reading Cyborg Women*. Durham, NC: Duke University Press, 1996. Print.

Banister, Manly. Letter to the Editor. *Astounding Science-Fiction.* June 1950: 155-158. Print.

Bates, Harry. *Farewell to the Master. Astounding Science-Fiction.* Oct. 1940. *Famous Science-Fiction Stories: Adventures in Time and Space*. Eds. Raymond J. Healy and J. Francis McComas. New York: Random House, 1957. 779-815. Print.

Berry, D. Bruce. Cover Art. *The Fanscient*. Ed. Donald B. Day. Spring 1949: Cover. Print.

Binder, Eando [Earl and Otto Binder]. "Orestes Revolts." *Astounding Science-Fiction.* Oct. 1938: 44-55. Print.

Boyer, Paul. *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age*. New York: Pantheon Books, 1985. Print.

Bradbury, Ray. Letter to the Editor. *Astounding Science-Fiction*. April 1939: 159. Print.

Brown, Oliver M. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1948: 159-160. Print.

Burke, Paul W. Letter to the Editor. *Astounding Science-Fiction*. Sept. 1948: 154-155. Print.

Byers, Mary. Letter to the Editor. *Astounding Science-Fiction*. Dec. 1938: 160-161. Print.

Calkins, H.E. Letter to the Editor. *Astounding Science-Fiction*. Nov. 1950: 156-158. Print.

Campbell, John W., Jr. "Atomic Age." Editorial. *Astounding Science-Fiction*. Nov. 1945: 5+. Print.

---. "Atomic Engines." Editorial. *Astounding Science-Fiction*. Nov. 1946: 5-6. Print.

---. "Brookhaven Laboratories." Editorial. *Astounding Science-Fiction*. Dec. 1948: 4+. Print.

---. "Concerning Dianetics." Editorial. *Astounding Science-Fiction*. May 1950: 4-5. Print.

---. "Digital Computer." Editorial. *Astounding Science-Fiction.* Dec. 1949: 4+. Print.

---. "Gleep and Bepo." Editorial. *Astounding Science-Fiction*. Jan. 1949: 5-6. Print.

---. "Nothing With A Name." Editorial. *Astounding Science-Fiction*. Dec. 1947: 5-6. Print.

---. "Postwar Plans…" Editorial. *Astounding Science-Fiction.* Feb. 1946: 5-6. Print.

---. "Progress To Be Made." Editorial. *Astounding Science-Fiction*. April 1946: 5-6. Print.

---. "Reconversion at Oak Ridge." Editorial. *Astounding Science-Fiction.* Feb. 1947: 5-6. Print.

---. "Science Fiction." General Electric's Science Forum. 29 Dec. 1938. Radio Address. *New Fandom*. Ed. Sam Moskowitz. July 1939: 5-8. Print.

---. "Secrecy and Death." Editorial. *Astounding Science-Fiction*. June 1946: 5+. Print.

---. "A Variety of Things." Editorial. *Astounding Science-Fiction*. Jan. 1939. 6. Print.

Carr, Edith J. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1950: 131-132. Print.

Cartier, Edd. Illustration. “Letter to Ellen.” By Chan Davis. *Astounding Science-Fiction.* June 1947: 42. Print.

---. Illustration. *Tomorrow’s Children.* Poul Anderson and F.N. Waldrop. *Astounding Science-Fiction.* March 1947: 57. Print.

Ceppos, Arthur. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1950: 151. Print.

Chafe, William H. *The Unfinished Journey: America Science World War II*. New York: Oxford University Press, 1999. Print.

Churchill, J.M.B. Letter to the Editor. *Astounding Science-Fiction*. Dec. 1945: 170-171. Print.

Clynes, Manfred E. and Nathan S. Kline. “Cyborgs and Space.” *Astronautics.* Sept. 1960: 26+. Print.

Collins, William J. and Robert A. Margo. “Home Ownership Rates, By Region, Sex, and Race: 1900–1990.” *Historical Statistics of the United States.* Table Dc761-780. Web.

“Computer AI Passes Turing Test in ‘World First.’” *BBC News*. 9 June 2014. Web. 24 Oct. 2014.

“Convention Report.” *Bloomington News Letter* [*Science Fiction Newsletter*]. Ed. Bob Tucker. Oct 1950: 1+. Print.

“Conventions in May and September.” *Bloomington News Letter* [*Science Fiction Newsletter*]. Ed. Bob Tucker. Dec 1950: 1. Print.

Courtis, Phyllisann. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1950: 149-150. Print.

Cowan, Ruth Schwartz. *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave*. New York: Basic Books, Inc., 1983. Print.

Croutch, Leslie. “Light Flashes.” *Light*. Ed. Leslie Croutch. Spring 1945: 3+. Print.

Cummings, Ray. “X1-2-200.” *Astounding Science-Fiction*. Sept. 1938: 58-69. Print.

Currier, Doris A. “New England Fan Convention.” *The Fanews*. Ed. Walt Dunkleberger. 2 Sept. 1945: 1-3. Print.

Curtis, Elizabeth M. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1950: 132-134. Print.

Davis, Chan. "Letter to Ellen." *Astounding Science-Fiction.* June 1947. *Science-Fiction Thinking Machines: Robots, Androids, Computers*. Ed. Groff Conklin. New York: Vanguard Press, 1954. 210-221. Print.

Dawson, A.M. Letter to the Editor. *Astounding Science-Fiction*. Nov. 1938: 160. Print.

Day, Donald B. *Illustration for the* Rubaiyat of Omar Khayyam. *The Fanscient*. Ed. Donald B. Day. Spring 1948: 12. Print.

del Rey, Lester. "Helen O'Loy." *Astounding Science-Fiction.* Dec. 1938. *The Best of Lester del Rey*. By Lester del Rey. New York: Ballantine Publishing Group, 1978. 1-11. Print.

Dianetics. Advertisement. *Astounding Science-Fiction*. Aug. 1950: 1. Print.

Dianetics. Advertisement. *Astounding Science-Fiction*. Sept. 1950: 1. Print.

Dianetics. Advertisement. *Astounding Science-Fiction*. Nov. 1950: 1. Print.

Dianetics. Advertisement. *Astounding Science-Fiction*. Dec. 1950: 1. Print.

Donawerth, Jane. *Frankenstein's Daughters: Women Writing Science Fiction*. Syracuse, NY: Syracuse University Press, 1997. Print.

Eaton, Miles. "Out of Legend: Holda." *The Fanscient*. Ed. Donald B. Day. Summer 1949: 8-9. Print.

The Fanews Photo Album. Ed. Walt Dunkelberger. Dec. 1945. Print.

Farsaci, Litterio B. "They Just Don't Mix." *New Fandom*. Ed. Sam Moskowitz. Sept. 1938: 7-9. Print.

Fitch, Catherine and Michael R. Haines. "Median Age at First Marriage, By Sex and Race: 1850–1999." *Historical Statistics of the United States.* Table Ae481-488. Web.

"Flashes From Everywhere." *Science Fiction News Letter*. Ed. Robert Lowndes. 22 April 1939: 2. Print.

Gardner, Thos. S. "Famous Characters of Science Fiction." *New Fandom*. Ed. Sam Moskowitz. July 1939: 11-13. Print.

Gibson, Bob. Letter to the Editor. *Light*. Ed. Leslie Croutch. Spring 1945: 21-23. Print.

Gibson, William. *Neuromancer*. New York: Ace Books, 1986. Print.

G.M. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1950: 158. Print.

Goldstone. *No Birds, No Bees, No Moon, No Trees, No-vember!* Cover art. *The Voice of the Imagi-Nation*. Ed. Forrest J. Ackerman. Nov. 1945: Cover. Print.

Gomoll. Jeanne. "Visualizing the Future." Introduction. *Women of Other Worlds: Excursions Through Science Fiction and Feminism*. Eds. Helen Merrick and Tess Williams. Nedlands, W. Australia: University of Western Australia Press, 1999. 2-11. Print.

Gordon, Samuel. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1948: 155. Print.

Haines, Michael R. "Crude Birth Rate and General Fertility Rate, by Race: 1800–1998." *Historical Statistics of the United State.* Table Ab40-51. Web.

---. "Marriage and Divorce Rates: 1920–1995." *Historical Statistics of the United States*. Table Ae507-513. Web.

Haraway, Donna. "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century." *Simians, Cyborgs, and Women: The Reinvention of Nature*. By Donna Haraway. London: Free Association Books, 1991. 149-181. Print.

---. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14.3 (Autumn 1988): 575-599. Print.

Hart, Dale. "The Female Element in Science Fiction." *Helios.* Ed. Sam Moskowitz. May-June 1938: 6. Print.

Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics.* Chicago, IL: The University of Chicago Press, 1999. Print.

Heinlein, Robert A. [as Anson MacDonald]. *Beyond this Horizon. Astounding Science-Fiction*. April and May 1942. *Beyond This Horizon*. By Robert Heinlein. New York: Signet, 1948. Print.

Herman, Eugenia L. Letter to the Editor. *Astounding Science-Fiction*. Sept. 1949: 154-155. Print.

Historical Statistics of the United States, Earliest Times to the Present: Millennial Edition. Eds. Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright. New York: Cambridge University Press, 2006. Web.

Honey, Maureen. *Creating Rosie the Riveter: Class, Gender, and Propaganda During World War II*. Amherst, MA: The University of Massachusetts Press, 1984. Print.

Horan, J.S. Letter to the Editor. *Astounding Science-Fiction*. Dec. 1950: 152. Print.

Hubbard, L. Ron. "Dianetics: The Evolution of a Science." *Astounding Science-Fiction*. May 1950: 43-87. Print.

---. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1950: 152-156. Print.

Huntington, John. *Rationalizing Genius: Ideological Strategies in the Classic American Science Fiction Short Story.* New Brunswick: Rutgers University Press, 1989. Print.

Hyatt, Richard C. Letter to the Editor. *Astounding Science-Fiction*. March 1949: 162. Print.

Jensen, L.M. Letter to the Editor. *Astounding Science-Fiction*. Nov. 1938: 158-59. Print.

Kahn, Bernard I. *Command. Astounding Science-Fiction.* Jan. 1947. *Space Service*. Ed. Andre Norton. Cleveland, OH: The World Publishing Company, 1953. 3-26. Print.

Kaninsky, Howard. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1948: 154-155. Print.

Kelleam, Joseph. "Rust." *Astounding Science-Fiction*. Oct. 1939. *The Robot and the Man*. Ed. Martin Greenberg. New York: Gnome Press, 1953. 195-207. Print.

Kelly, Robert. Letter to the Editor. *Astounding Science-Fiction*. Nov. 1950: 156. Print.

Key, W.P. Letter to the Editor. *Astounding Science-Fiction*. Dec. 1946: 173-176. Print.

Kildale. Illustration. "A Logic Named Joe." By Murray Leinster [as Will F. Jenkins]. *Astounding Science-Fiction.* March 1946. 145. Print.

Kildale. Illustration. "A Logic Named Joe." By Murray Leinster [as Will F. Jenkins]. *Astounding Science-Fiction.* March 1946. 150. Print.

King, D.C. Letter to the Editor. *Astounding Science-Fiction*. Feb. 1946: 118-119. Print.

Klingbiel, Paul. H. "A Partial Introduction to General Semantics." *The Fanscient*. Ed. Donald B. Day. Spring 1948: 24+. Print.

Korzybski, Alfred. *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics.* Lakeville, CT: The International Non-Aristotelian Library Publishing Company, 1948. Print.

Kuttner, Henry. "Ghost." *Astounding Science-Fiction*. May 1943. *Ahead of Time*. By Henry Kuttner. New York: Ballantine Books, 1953. 106-124. Print.

Larbalestier, Justine. *The Battle of the Sexes in Science Fiction*. Middletown, CT: Wesleyan University Press, 2002. Print.

Leinster, Murray [as Will F. Jenkins]. "A Logic Named Joe." *Astounding Science-Fiction.* March 1946. *Doorway into Time and Other Stories from Modern Masterpieces of Science Fiction*. Ed. Sam Moskowitz. New York: MacFadden Books, 1966. 43-58. Print.

Levine, Arthur. Letter to the Editor. *Bloomington News Letter* [*Science Fiction Newsletter*]. Ed. Bob Tucker. Oct. 1950: 8. Print.

Ley, Willy [as Robert Willey]. *Orbit XXIII-H. Astounding Science-Fiction*. Sept. 1938: 17-56. Print.

Light. Ed. Leslie Croutch. Fall 1945. Print.

Locke, E.L. "Cybernetics." *Astounding Science-Fiction*. Sept. 1949: 78-87. Print.

---. "The Electrical Robot Brain." *Astounding Science-Fiction*. May 1948: 79-92; June 1948: 102-117. Print.

---. "Electronics—New Style!" *Astounding Science-Fiction*. Dec. 1948: 91-104. Print.

"Long List of Retro Hugo Winners." N.p., n.d. Web. 6 Nov. 2014. <http://www.nesfa.org/data/LL/Hugos/hugos1951.html>.

Long, Wesley [George O. Smith]. *Circle of Confusion. Astounding Science-Fiction*. March 1944: 45-65. Print.

---. *The Fixer*. *Astounding Science-Fiction*. May 1945: 68-98. Print.

---. *Redevelopment. Astounding Science-Fiction.* Nov. 1944: 136-168. Print.

MacDonald, John D. "The Mechanical Answer." *Astounding Science-Fiction*. May 1948. *The Robot and the Man*. Ed. Martin Greenberg. New York: Gnome Press, 1953. 13-34. Print.

---. *Trojan Horse Laugh. Astounding Science-Fiction.* Aug. 1949. *Dimension 4*. Ed. Groff Conklin. New York: Pyramid Books, 1964. 57-102. Print.

MacLean, Katherine. "Pyramids in the Desert." *The Diploids*. By Katherine MacLean. New York: Avon Books, 1962. 79-99. Print. Rpt. of "And Be Merry…" *Astounding Science-Fiction*. Feb. 1950: 107-123. Print.

Marble, Richard A. Letter to the Editor. *Astounding Science-Fiction*. March 1948: 157. Print.

"Mathematician." *Astounding Science-Fiction.* June 1944: 99-102. Print.

May, Elaine Tyler. *Homeward Bound: American Families in the Cold War Era*. New York: Basics Books, 1999. Print.

McIlwain, David. Letter to the Editor. *Astounding Science-Fiction*. Nov. 1938: 158. Print.

Merril, Judith. "That Only a Mother." *Astounding Science-Fiction.* June 1948. *The Wesleyan Anthology of Science Fiction.* Eds. Arthur B. Evans, Istvan Csicsery-Ronay Jr., Joan Gordon, Veronica Hollinger, Rob Latham, and Carol McGuirk. Middletown, CT: Wesleyan University Press, 2010. 212-220. Print.

Michel, John. "Aspirin Odyssey." *The Science Fiction Fan.* Ed. Olon F. Wiggins. Oct. 1939: 16-22. Print.

---. "Mutation or Death." Speech. Third Eastern Science Fiction Convention. Philadelphia, PA. Oct. 1937. *Fancyclopedia 3*. 31 July 2011. Web. 3 Aug. 2013.

Moore, C.L. "No Woman Born." *Astounding Science-Fiction.* Dec. 1944. *The Best of C.L. Moore*. Ed. Lester del Rey. New York: Ballantine Books, 1975. 236-288. Print.

Moskowitz, Sam. "World of Ā: An Opinion." *The Fanews*. Ed. Walt Dunkelberger. 5 Nov. 1945: n. pag. Print.

New Fandom. Ed. Sam Moskowitz. n.d. Print.

The 1945-46 Fantasy Review. Ed. Joe Kennedy. 1946. Print.

"No Nudes is Good Nudes." *Science Fiction News Letter*. Ed. Frederik Pohl. 7 Sept. 1938: 1. Print.

"The Norwescon Report." *The Fanscient*. Ed. Donald B. Day. Spring-Summer 1951: 12+. Print.

"Notes." *Science Fiction News Letter*. Ed. Robert Lowndes. 23 April 1938: 1. Print.

Nude Woman. *Light*. Ed. Leslie Croutch. Winter 1944: 33. Print.

O'Donnell, Lawrence [Henry Kuttner and C.L. Moore]. "This is the House." *Astounding Science-Fiction.* Feb. 1946. *A Gnome There Was, And Other Tales of Science Fiction and Fantasy*. By Lewis Padgett. New York: Simon and Schuster, 1950. 189-216. Print.

Ogden, Annegret S. *The Great American Housewife: From Helpmate to Wage Earner, 1776-1986*. Westport, CT: Greenwood Press, 1986. Print.

Orban, Paul. Illustration. *Camouflage.* By Lewis Padgett [Henry Kuttner and C.L. Moore]. *Astounding Science-Fiction*. Sept. 1945: 144. Print.

---. Illustration. *The Purpose.* By A.E. van Vogt. *Astounding Science-Fiction*. May 1945: 139. Print.

Padgett, Lewis [Henry Kuttner and C.L. Moore]. *Camouflage. Astounding Science-Fiction*. Sept. 1945. *Ahead of Time*. By Henry Kuttner. New York: Ballantine Books, 1953. 51-90. Print.

Parker, Eugene N. and George S. Kenny. Letter to the Editor. *Astounding Science-Fiction*. July 1950: 127-128. Print.

Pierce, John R. [as J.J. Coupling]. "The Little Blue Cells." *Astounding Science-Fiction*. Feb. 1949: 85-99. Print.

"Portland Convention Pictures." *Bloomington News Letter* [*Science Fiction Newsletter*]. Ed. Bob Tucker. Dec. 1950: 8-9. Print.

The Public Opinion Quarterly. 6.1 (Spring 1942). Web. 30 Nov. 2013.

Quill, Alpert P. Letter to the Editor. *Astounding Science-Fiction*. March 1939: 159-160. Print.

"The Reporter." *Bloomington News Letter* [*Science Fiction Newsletter*]. Ed. Bob Tucker. Oct. 1950: 5. Print.

Robb, Harry J. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1950: 156-158. Print.

Roosa, William B. Letter to the Editor. *Astounding Science-Fiction*. June 1950: 158-160. Print.

Rothman, Sheila M. *Woman's Proper Place: A History of Changing Ideals and Practices, 1870 to the Present*. New York: Basic Books, Inc., 1978. Print.

Russ, Joanna. "*Amor Vincit Foeminam*: The Battle of the Sexes in Science Fiction." *Science-Fiction Studies*. Volume 7 (1980). *To Write Like A Woman: Essays in*

Feminism and Science Fiction. By Joanna Russ. Bloomington, IN: Indiana University Press, 1995. 41-59. Print.

---. *To Write Like A Woman: Essays in Feminism and Science Fiction*. Bloomington, IN: Indiana University Press, 1995. Print.

---. "When It Changed." *The Wesleyan Anthology of Science Fiction.* Eds. Arthur B. Evans, Istvan Csicsery-Ronay Jr., Joan Gordon, Veronica Hollinger, Rob Latham, and Carol McGuirk. Middletown, CT: Wesleyan University Press, 2010. 507-515. Print.

Schneeman, Charles. Illustration. "Liar!" By Isaac Asimov. *Astounding Science-Fiction*. May 1941: 43. Print.

"Science Fiction League." *Fancyclopedia 3*. 26 Sept. 2014. Web. 07 Oct. 2014.

"Science-Fiction Marches On!" *Bloomington News Letter*. Ed. Bob Tucker. Oct. 1949: 1+. Print.

Science Fiction News Letter. Ed. Frederik Pohl. 1 Sept. 1938. Print.

Scott, Melissa. *Trouble and Her Friends*. New York: Tor Books, 1994. Print.

Shiras, Wilmar H. "In Hiding." *Astounding Science-Fiction.* Nov. 1948. *Children of the Atom*. By Wilmar H. Shiras. Garden City, NY: Nelson Doubleday, Inc., 1953. 1-33. Print.

---. *New Foundations*. *Astounding Science-Fiction*. March 1950. *Children of the Atom*. By Wilmar H. Shiras. Garden City, NY: Nelson Doubleday, Inc., 1953. 68-103. Print.

---. *Opening Doors*. *Astounding Science-Fiction*. March 1949. *Children of the Atom*. By Wilmar H. Shiras. Garden City, NY: Nelson Doubleday, Inc., 1953. 34-67. Print.

Smith, Louis G. Letter to the Editor. *New Fandom*. Ed. Sam Moskowitz. Nov. 1938: 19. Print.

Smyth, Henry DeWolf. *Atomic Energy for Military Purposes: The Official Report on the Development of the Atomic Bomb Under the Auspices of the United States Government, 1940-1945*. Princeton, MA: Princeton University Press, 1948. Print.

Snowden, Kenneth A. "New Mortgage Loans on One- to Four-Family Homes, By Type of Lender: 1925–1950." *Historical Statistics of the United States*. Table Dc983-989. Web.

Speer, Jack. "IPO." *The Science Fiction Fan*. Ed. Olon F. Wiggins. July 1939: 4-5. Print.

---. Letter. *The Voice of the Imagi-nation*. Ed. Forrest J. Ackerman. July 1946: 9-10. Print.

Stanton, L. Jerome. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1946: 175-178. Print.

Stevenson, C. Burton. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1946: 171-174. Print.

Stone, Allucquère "Sandy." *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, MA: MIT Press, 1995. Print.

Strasser, Susan. *Never Done: A History of American Housework.* New York: Pantheon Books, 1982. Print.

Strother, Tony. Letter to the Editor. *Astounding Science-Fiction*. Dec. 1938: 158-59. Print.

Sturgeon, Theodore. *Killdozer! Astounding Science-Fiction*. Nov. 1944. *To Marry Medusa*. By Theodore Sturgeon. New York: Baen Books, 1987. 165-251. Print.

Temple, William F. Letter to the Editor. *Light.* Ed. Leslie Croutch. Spring 1945: 20-21. Print.

Tenn, William. "The House Dutiful." *Astounding Science-Fiction.* April 1948. *Beyond Human Ken*. Ed. Judith Merril. New York: Random House, 1952. 16-34. Print.

Thomas, S.G. Letter to the Editor. *Astounding Science-Fiction*. July 1946: 172-173. Print.

"To Press." *Science Fiction News Letter*. Ed. Richard Wilson, Jr. 17 Sept. 1938: 1. Print.

Turing, Alan M. "Computing Machinery and Intelligence." *Mind*, New Series. 59.236 (Oct. 1950): 443-460. *JSTOR*. Web. 28 Aug. 2010.

Turnbull, Donald G. Letter to the Editor. *Astounding Science-Fiction*. July 1938: 162. Print.

The Vagrant. "Vagabondia, STF." *The Science Fiction Fan*. Ed. Olon F. Wiggins. Aug. 1939: 3+. Print.

van Dresser, Peter. "Why Rockets Don't Fly." *Astounding Science-Fiction*. Oct. 1938: 81-89. Print.

Van Tilburg, C.W. Letter to the Editor. *Astounding Science-Fiction*. Feb. 1950: 136. Print.

van Vogt, A.E. *The Players of Ā. Astounding Science-Fiction.* Oct. 1948-Jan. 1949. *The Players of Null-A*. By A.E. van Vogt. New York: Berkley Medallion Books, 1948. Print.

---. *The Purpose. Astounding Science-Fiction*. May 1945. *The Far-Out Worlds of A.E. van Vogt*. By A.E. van Vogt. New York: Ace Books, 1968. 41-82. Print.

---. *The World of Ā. Astounding Science-Fiction*. August-October 1945. *Triad: Three Complete Science Fiction Novels*. By A.E. van Vogt. New York: Simon and Schuster, 1959. 7-182. Print.

Verniud, W.K. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1938: 154-158. Print.

Vernon, Leo. "Tools for Brains." *Astounding Science-Fiction*. July 1939: 80-90. Print.

The Voice of the Imagi-Nation. Ed. Forrest J. Ackerman. Halloween 1945. Print.

The Voice of the Imagi-Nation. Ed. Forrest J. Ackerman. Nov. 1945. Print.

Le Vombiteur. Ed. Robert A. W. Lowndes. Dec. 1940. Print.

Waible, G. Illustration. "Pyscholorelei." By Eric Atlas. *The Fanscient.* Ed. Donald B. Day. Summer 1948: 14. Print.

Walker, Jessie E. "Rockets for Atlantis?" Rev. of *The Story of Atlantis*, by W. Scott-Elliot. *Light*. Ed. Leslie Croutch. Fall 1945: 8+. Print.

Warren, Donald. Letter. *The Voice of the Imagi-nation*. Ed. Forrest J. Ackerman. Nov. 1945: 6-7. Print.

Wesso, Hans. Illustration. "X1-2-200." By Ray Cummings. *Astounding Science-Fiction*. Sept. 1938: 58-59. Print.

Whitt, Ursula C. Letter to the Editor. *Astounding Science-Fiction*. Feb. 1949: 147-148. Print.

Wiener, Norbert. *Cybernetics, or Control and Communication in the Animal and the Machine*. New York: The Technology Press, 1949. Print.

---. *The Human Use of Human Beings: Cybernetics and Society*. Boston, MA: De Cappo Press, 1954. Print.

Williamson, Jack. *...And Searching Mind. Astounding Science-Fiction*. March 1948: 7-61; April 1948: 111-162; May 1948: 97-147. Print.

---. *The Humanoids*. New York: Lancer Books, 1963. Print. Rpt. of *...And Searching Mind. Astounding Science-Fiction*. March-May 1948. Print.

---. Rev. of *The Reach of the Mind*, by J.B. Rhine. *Astounding Science-Fiction*. Aug. 1948: 87-88. Print.

---. *With Folded Hands… Astounding Science-Fiction.* July 1947. *Doorway into Time and Other Stories from Modern Masterpieces of Science Fiction*. Ed. Sam Moskowitz. New York: MacFadden Books, 1966. 59-102. Print.

Wilson, Elizabeth. "Imaginable Computers: Affects and Intelligence in Alan Turing." *Prefiguring Cyberculture: An Intellectual History*. Eds. Darren Tofts, Annemarie Jonson and Alessio Cavallaro. Cambridge, MA: The MIT Press, 2002. 38-49. Print.

Wilson, Richard, Ed. *Science Fiction News Letter*. Halloween 1938. Print.

Winter, Joseph A. Introduction. "Dianetics: The Evolution of a Science." By L. Ron Hubbard. *Astounding Science-Fiction*. May 1950: 43-44. Print.

---. Letter to the Editor. *Astounding Science-Fiction*. Aug. 1950: 159-160. Print.

Wollheim, Donald A. "Fanfarade." *The Science Fiction Fan.* Ed. Olon F. Wiggins. July 1939: 3-4. Print.

Wright, Rosco E. Letter to the Editor. *Astounding Science-Fiction*. Oct. 1948: 158-159. Print.

Wright, Tom. Letter to the Editor. *Astounding Science-Fiction*. April 1940: 162. Print.

Yaszek, Lisa. *Galactic Suburbia: Recovering Women's Science Fiction*. Columbus, OH: The Ohio State University Press, 2008. Print.

Zekley, Zeke. *Hey, Boss*. *Light*. Ed. Leslie Croutch. Winter 1944: 12. Print.