



# Grafting Symbiosis: Care, Empathy, and Scientific Reform in Naomi Mitchison's *Memoirs of a Spacewoman*

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*Abstract:* This article examines the presence and potential applications of care, empathy, and anti-binary approaches in relation to scientific thought and practice in Naomi Mitchison's first science fiction novel, *Memoirs of a Spacewoman* (1962). I argue that Mitchison's portrayal of alien mothering and interspecies communication both interrogates the social consequences of reproductive technology and gestures towards a model of scientific study where empathy and care are valued, where the unstable boundaries between "Self" and "Other" can be interrogated, and where structures of sameness and difference might be revised. Mitchison's emphasis on relationality, emotion, contextual particularity, and empathy shed light on the radical possibilities of engaging with care in the scientific field. By first engaging with the relevant historical and contemporary discourse surrounding care, feminist science and technology studies, and feminist speculative fiction criticism, this article investigates the ways in which Mitchison's alien encounters can disrupt the gendered binaries of both social and scientific thought.

*Keywords:* Science fiction, otherness, care, empathy, feminist science, Scottish

## 1. Introduction

Scottish writer Naomi Mitchison's 1962 novel *Memoirs of a Spacewoman* (hereafter referred to as *Memoirs*) can be characterized as a work of numerous

dichotomies. It presents a future vision that is simultaneously utopian and perilous: as Jane Donawerth writes, Mitchison's novel "records an attempt to build a utopian science for women" while at the same time offering "an examination of the problems which might arise in such a science" (30). In Mitchison's novel, the protagonist Mary travels between planets as part of a research team. Her task lies in the development of new modes of communication to enable exchange and understanding across species. In between planetary visits, she volunteers to have not one, but two alien grafts fused to her human body in an effort to heighten her abilities in empathetic interspecies communication. The complexities and contradictions inherent to *Memoirs* reflect Mitchison's own intimate experiences with science and feminism during her lifetime. As she was born in 1897, it is critical to consider the changing cultural and political landscape of the twentieth century in relation to this experience; Mitchison was sixty-five at the time of the novel's publication and had already lived an active life as an activist and writer. Within *Memoirs*, her first SF novel, evidence of engagement with many ideas and contexts – ranging from subversion to reinforcement (and at times the simultaneous appearance of both) therefore appears. In 1962, the endeavor of imagining a future in which the boundaries of scientific discovery could be dismantled or made accessible remained an extremely difficult task for writers of feminist SFF. Thus, complex entanglements and inheritances are inextricably written into Mitchison's visions of a social and scientific future as she continues to grapple with scientific advancement as both inherently harmful and potentially liberating.

Although gendered essentialisms and feminist contradictions remain embedded in the social and cultural values of the novel, *Memoirs* simultaneously acknowledges and interrogates the socially constructed nature of scientific practices, objectivities, and binaries. Experiences of alien mothering interrogate reproductive technologies while instances of inter-species communication allow protagonist Mary to explore alternatives to binary modes of thought and in turn enable Mitchison to present her own meaningful contribution toward what Susan Merrill Squier calls "the feminist vision of an emancipatory science" during a period in which the new possibilities of feminist science studies were beginning to take shape (199). As Donawerth writes, the novel at once both distrusts and hopes (30).

As the only daughter of Oxford physician John Scott Haldane (1860–1936), Mitchison's fascination with the world of science was nurtured from childhood. Surrounded by an atmosphere of experimentation and intellect, she developed an interest in biology alongside her elder brother J.B.S. Haldane (1892–1964) with whom she carried out numerous breeding experiments with mice and guinea pigs during childhood. Together, they followed the animals' behaviors from generation to generation, observing them carefully from behind wire fences in their Oxford garden. The siblings even co-authored a scientific paper on the subject, which would start J.B.S. Haldane on his path to become a successful geneticist.<sup>1</sup>

From Mitchison's own childhood memoirs, we can see how each sibling approached their scientific work differently. This was partly to do with gendered and generic conventions. Mitchison later reflected that Jack always

<sup>1</sup> For more, see Krishna Dronamraju's edited volume of Haldane's writings, *What I Require from Life: Writings on Science and Life from J.B.S. Haldane*.

wanted to do “serious genetics” with the guinea pigs, while she characterized her own approach as “semi- scientific”: “I never had my brother’s early understanding of [science] and I wonder, now, whether this was temperamental or whether certain avenues of understanding were closed to me by what was considered suitable or unsuitable for a little girl” (Caldecott 14–15). Indeed, from a young age Mitchison was personally invested in a feminist reconfiguration of science. However, she also goes on to describe her particular interest in and relationship with the animals of her early scientific experiments, which suggests an intrinsic questioning of the subject/object divide: “I had started by keeping a few [guinea pigs] and gradually began to study them in a semi-scientific sense, listening to, identifying and copying their various squeaks and chitters, and seeing their relationship with one another” (*As it Was* 61).

The young Naomi had unknowingly hit upon an alternative vision of scientific practice which suggested, as Susan Merrill Squier highlights, that “the methodological boundaries of science, like gender boundaries, are not invariant and natural but rather culturally constructed” and therefore, as Mitchison would explore decades later in *Memoirs of a Spacewoman*, could be disrupted (172). Modelled on Mitchison’s alternative approach to the study of her guinea pigs, the goal of Mary, protagonist of *Memoirs*, is not to achieve domination over new territory, but to establish communication with non-human species. As a communications expert, Mary is at the forefront of this method of scientific enquiry which can be best described as empathy. Throughout the novel, she strives to develop this model, which, as we will see, is not without its risks.

I first provide a brief outline of the relationship between care and speculative fiction writing, drawing upon theoretical concepts offered by scholars of care studies and feminist science and technology studies to support my arguments. I also devote further space to my understanding of relevant essentialisms, binaries, and dichotomies, situating Mitchison’s novel in relation to a history of feminist SFF and exploring the relationship between women and science more broadly. *Memoirs* does not follow a traditional plot or narrative structure, instead it presents a collection of memoirs (some personal reflections, some detailing specific experiences) belonging to Mary, an interplanetary explorer and scientist with expertise in interspecies communication. The first incident, analyzed in section 3, details Mary’s involvement with an alien graft experiment and enables an exploration into sexuality, motherhood, and reproductive technologies, while the concluding section documents Mary’s attempts at empathetic non-verbal communication with an alien species, which demonstrates both the potential risks and rewards of more fluid conceptions of “Self”/“Other.”

## 2. Care and Speculative Fiction

Before moving to a more detailed textual analysis of the novel, I would like to delve further into conceptualizations of care with the aim of providing a brief overview of its varied definitions that outlines the key points in relation to Mitchison’s novel. In her 1982 monograph *In a Different Voice*, Carol Gilligan critiques the perceived superiority of moral development theories which prioritize a “morality of rights” rooted in autonomy and individual ambition. She instead advocates for a “morality of responsibility” which prizes interdependence

and views intimate relationships with others as critical to the trajectory of moral development (19).<sup>2</sup> Since the publication of Gilligan's original work in 1982, the ethics of care as a theory of morality has developed and expanded in numerous ways across various fields of study.<sup>3</sup> However, as Susan M. Wolf makes clear, feminist ethics does not equal the ethics of care (8–9).

The relationship between feminist ethics and an ethics of care is more complex than simple equation. It is also necessary to address, as Jane Keller and Eva Feder Kittay point out, that early articulations of feminist care ethics (such as Gilligan's and Nel Noddings') have been criticized for their affirmation of a distinctly "feminine" ethic that reinforces the essentialisms of patriarchy and thus does not systematically address the inequalities of power between genders (543). It is critical to acknowledge such essentialisms and, in turn, to emphasize the subjectivity, contextuality, and nuance with which we must approach the ever-changing notions of feminism and care. As María Puig de la Bellacasa writes in her influential work *Matters of Care* (2017):

We learn from feminist approaches that [care] is not a notion to embrace innocently. Thought and work on care still has to confront the tricky grounds of essentializing women's experiences (Hoagland 1991) and the persistent idea that care refers, or should refer, to a somehow wholesome or unpolluted pleasant ethical realm. Delving into feminist work on the topic invites us to become substantially involved with care as a living terrain that seems to need to be constantly reclaimed from idealized meanings, from the constructed evidence that, for instance, associates care with a form of unmediated work of love accomplished by idealized carers. Contemporary reengagements with care are keeping this outlook when they both engage to continue fostering care as well as warn against an overoptimistic view on its practice when they prompt us to continue "unsettling" care (Murphy 2015), or as Aryn Martin, Natasha Myers, and Ana Viseu put it, prolonging Donna Haraway's call, to "stay with the trouble" (Haraway 2016) in the way we engage in caring. (7–8)

For the purposes of this analysis, when discussing aspects of "care" as present within Mitchison's novel (prior to its moral theorization by Gilligan and others), I draw upon several features articulated by Virginia Held in her 2005 work, *The Ethics of Care*, which include: the rejection of abstract reasoning as a means of achieving impartiality, an emphasis on context that advocates for variability and subjectivity in interpersonal relationships, the appreciation of emotions, and the advocacy of interdependence (10–13). While acknowledging and embracing, as Puig de la Bellacasa does, that care is messy: "meaning different things to different people, in different situations" and simultaneously "an affection, a moral obligation, work, a burden, a joy, something we can learn or practise," and "something we just do" (1), for the purposes of this article I wish to also

<sup>2</sup> Other early works of feminist care ethics include Nel Noddings' *Caring: A Relational Approach to Ethics & Moral Education* and Sara Ruddick's "Maternal Thinking."

<sup>3</sup> See Virginia Held's *The Ethics of Care: Personal, Political, and Global*, Joan C. Tronto's *Caring Democracy: Markets, Equality, and Justice*, Donna Haraway's *Staying with the Trouble: Making Kin in the Chthulucene*, María Puig de la Bellacasa, *Matters of Care: Speculative Ethics in More than Human Worlds*, and see also Ingvil Hellstrand's recent work on care, science fiction, and technology, including "Almost the same, but not quite: Ontological politics of recognition in modern science fiction." And her work as part of the *Caring Futures: developing care ethics for technology-mediated care practices* project (2020–2024: <https://www.uis.no/en/caringfutures>).

emphasize that care is *not* a human-only matter. Puig de la Bellacasa continues, “affirming the absurdity of disentangling human and nonhuman relations of care and the ethicalities involved requires decentring human agencies, as well as remaining close to the predicaments and inheritances of situated human doings” (2). This entanglement has particular resonance with the experiences of *Memoirs*’ protagonist Mary, and I return to it in the following sections.

### 3. Feminist Science (Fiction): Essentialisms and Subversions

I argue here, as Joanna Russ proposed in 1972, that feminist SFF continues to provide a vehicle for exploring pressing anxieties and experiences concerning women’s relationship to science and technology in a way that is not possible in more traditional genres where expectations limit the feminist imagination (79–93). I also argue, as Hilary Rose did in 1994, that current literary criticism concerned with a recovery of women’s SFF continues to underplay its relationship with *science* criticism (208–29). Since the days of early utopian writing, feminist authors have endeavored to create space for women in science, for example, Margaret Cavendish’s scientist and philosopher Empress in *The Description of a New World, Called the Blazing World* (1666), the inventor heroine in Mary Griffith’s *Three Hundred Years Hence* (1836), and the female geneticists of Charlotte Perkins Gilman’s future in *Herland* (1915). Cavendish’s *Blazing World* even positioned creative and imaginative fictional writing as stemming from the rational mind, whereas philosophy, supposedly grounded in “rational probabilities,” was prone to “embrac[ing] falsehood for truth” (Mary’s gender essentialism in *Memoirs* supports a similar claim).<sup>4</sup>

It is also critical to acknowledge the importance and relevance here of Mary Shelley’s *Frankenstein* (1818) (which Brian Aldiss calls the first true science fiction story) in the history of science fiction writing and in particular relation to its engagement with conceptions of gender and scientific advancement more generally. As Aldiss states,

*Frankenstein: or, The Modern Prometheus* was published in 1818, in the same year as works by Shelley, Peacock, Scott, Hazlitt, Keats, and Byron. The Napoleonic Wars were over; Savannah crossed the Atlantic, the first steamship to do so; the early steam locomotives were chuffing along their metal tracks, the iron foundries going full blast; the Lancashire cotton factories were lit by gas, and gas mains were being laid in London. Telford and McAdam were building roads and bridges, Galvani’s followers and Humphry Davy were experimenting with electricity. (20)

Aldiss identifies *Frankenstein* as Gothic in character, and yet Shelley’s world would be the dream from which “science fiction springs.” In combining a focus on new scientific ideas with firm social criticism, which plugged directly into the environment of her day, Shelley anticipated the scientific romances of H. G. Wells and many of the authors who followed him (Aldiss 23).

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<sup>4</sup> See Margaret Cavendish, edited by Kate Lilley, *The Description of a New World Called the Blazing World and Other Writings* (pp. xxviii–xxix, 123–24, 224–25) and Ruth Watts, *Women in Science: A Social and Cultural History* (pp. 51–53).

Early in Shelley's *Frankenstein*, Victor Frankenstein listens enraptured to his lecturer M. Waldman, who inspires him to pursue a scientific career. Waldman confidently declares: "The labours of men of genius, however erroneously directed, scarcely ever fail in ultimately turning to the solid advantage of mankind" (Shelley 50). Scientific excellence is presented as unequivocally beneficial to "mankind" and thus neutral in its pursuits, yet this statement upholds biological determinism and the exclusion of women from scientific pursuits (both of which the field of feminist science and technology studies strives to critique). Conceptualizations of scientific neutrality and objective rationality are not only exclusionary, but simultaneously exploitative. As Katherine McKittrick identifies, there exists an inextricable link between the ideologies and exploitations of the colonial project and the continual accretion of scientific knowledge; thus, positioning scientific development as closely intertwined with the constitution of a racialized and gendered body. Scientific neutrality can therefore be considered a masculinist and colonial knowledge system (129–132). In *Frankenstein*, whilst male achievements in scientific fields are heralded as labors of genius, their pursuit of socio-civilizational progress relies upon the extermination and exploitation of female bodies.<sup>5</sup> As David Leishman points out, "the scientification of childbirth, in the wake of men like William Hunter, was another instance of patriarchal forces both rendering passive the female body and socially suppressing the midwives who had previously been the female attendants of a birth process," but it was also commonly considered a science of *morbidity* "since surgeons and male midwives primarily intervened in cases of foetal and maternal complications where one of the primary objectives was the removal of a dead foetus" (205–06). As such, Katerina Kitsi-Mitakou asserts that:

Almost all female bodies in the novel are turned into corpses even before they are given the chance to experience motherhood. Some female bodies have, of course, never existed: like the monster's mother, or the monster's female companion. They have been replaced by Frankenstein's "workshop of filthy creation" ([Shelley] 315), for it is there that the scientist combines and animates bones, limbs, and organs snatched from the "dissecting room and the slaughter-house" (315). (212)

Themes of the abject maternal and the relationship between the objectification and commodification of women's bodies in relation to scientific practice are key to Mitchison's concern with reproductive technologies in *Memoirs*, made clear during a communications experiment in which Mary has two alien grafts attached to her upper thigh. Shelley's connection between the scientific advancements of her age and the social ramifications for women is a critical starting point in the development of feminist science fiction, a thread that runs through the work of Mitchison over a century later.

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<sup>5</sup>In the context of Scottish Literature, Alasdair Gray's 1992 novel *Poor Things* should also be acknowledged here as a conscious echo of Shelley's narrative. *Poor Things* tells of the surgical creation of "Bella Baxter" by Godwin Bysshe Baxter: brought into being by joining the body of a woman, dead by suicidal drowning but reanimated by Baxter, with the brain of a living fetus with which she was pregnant at the time of her death. For more, see John Glendening's "Education, Science and Secular Ethics in Alasdair Gray's *Poor Things*."

Events in Mitchison's novel take place in a future where traditional family structures have been forced to adapt to frequent space travel and the necessary "time blackouts" in which spaceship crew members are exposed to varying levels of time dilation as they journey across the universe. While new parents in the field are allowed a singular "customary slow-motion year" on Earth to care for their children in the early stages of development, they soon return to their work off-planet and must accept that when they next stop at home, their children may be older than they are. From the opening of Mitchison's novel, we are confronted with what Isobel Murray calls "the device that makes the book truly science fiction": the confluence of mother and scientific expert (viii). The opening words *Memoirs* provide an insight into Mary's experience of motherhood: "I think about my friends and the fathers of my children. I think about my children, but I think less about my dear four normal than I think about Viola. And I think about Ariel. And the other" (Mitchison, *Memoirs* 5). We are immediately exposed to the normalcy of multiple children borne to multiple fathers (human and non-human) and, as will later be explored, those borne to no fathers at all.

Mary also indicates a greater sense of attachment to her non-human children born during her time away from Earth. Despite Mary's claims of normalcy and acceptance, "as a child I had accepted this without bothering .... For me and my friends, parents and grandparents came and went" (*Memoirs* 7–8), her reflections on motherhood indicate that while some aspects of this future world are perhaps more accommodating to a feminist model of science (as highlighted by Murray), difficulties remain ever-present in the relationship between care and technology. Despite the freedoms afforded by the space travel of her profession, Mary continues to outline the complications attached to these variable temporalities of motherhood: "I know as well as the rest that one shouldn't let oneself be attracted, and at least all my children's fathers were in my own age group or older. One ought to leave the young alone. How many times I've said that to myself! And usually, I will say, acted on it" (*Memoirs* 6).

Early in the novel, Mary reflects on her attitudes towards her scientific profession:

I may be out of date, but I always feel that biology and, of course, communication are essentially women's work, and glory. Yes, I know there have been physicists like Yin Ih and molecular astronomers – I remember old Jane Rakadsalis myself, her wonderful black, ageless face opening into a great smile! But somehow the disciplines of life seem more congenial to most of us women. (*Memoirs* 9)

In Mary's world, women's scientific history (notably including women of color) has been restored, and access to the scientific workplace has been granted (even for those who choose to have children). Yet, Mitchison struggles to envision a future where the constructs of gender and accompanying essentialisms are abandoned entirely (protagonist Mary continues to champion innately "feminine" traits, and acts of care and the expectation of motherhood remain associated with biologically determined gender roles). Similarly, although a scientific experiment involving Mary as human host to an alien graft gestures towards the celebration of a relationship outside heteronormative bounds and the potential for non-gendered pregnancy, it falls short of presenting a future

in which femininity is no longer synonymous with sexual reproduction and woman as child-bearer.

In *Memoirs*, we can identify a tension between what Sandra Harding refers to as the two key questions of feminist science studies: “What is to be done about the situation of women in science?” and “Is it possible to use for emancipatory ends sciences that are apparently so involved in Western, bourgeois and masculine projects?” (9). Harding argues that feminist science and technology studies had gravitated away from the former question towards a key focus on the latter by the time her work *The Science Question in Feminism* (1986) was published (9). Mitchison’s novel occupies a space between the two – often reaching for both and thus generating contradictions and complexities, subverting and reinforcing patriarchal hierarchies simultaneously. Even today, the labels of “soft science” (associated with women) and “hard science” (associated with men) remain present and influential along with many of the stereotypes that accompany them – all of which are present within Mitchison’s novel (Light, Benson-Greenwald, and Diekman 1–12). In examining Mitchison’s portrayal of a female scientist, her presentation of inter-species motherhood, her critique of reproductive technologies, and her suggestion of an empathy-based and anti-binary mode of scientific thought and practice, it is critical to keep in mind the oppressive cultural constructions of the scientific field. Harding articulates that it

holds that the epistemologies, metaphysics, ethics, and politics of the dominant forms of science are androcentric and mutually supportive; that despite the deeply ingrained Western cultural belief in science’s intrinsic progressiveness, science today serves primarily regressive social tendencies; and that the social structure of science, many of its applications and technologies, its modes of defining research problems and designing experiments, its ways of constructing and conferring meanings are not only sexist but also racist, classist, and culturally coercive. (9)

Throughout *Memoirs*, Mary continually asserts that “biology and, of course, communication are essentially women’s work” and that “the disciplines of life seem more congenial to most of us women” (Mitchison, *Memoirs* 9). Although these claims are definitively essentialist, this does not necessarily indicate that the novel is anti-feminist. Mitchison uses Mary’s womanhood as a claim for legitimacy as a scientist, presenting traditionally feminine qualities as positive attributes, which in this society, make women indispensable to the development of science. Thus, by combining this view of essentialism with a history of science that has always included and celebrated women, Mitchison is attempting a revisioning of our own scientific histories, which (as outlined above) have seen women excluded, erased, marginalized, and harmed. Rather than limit women’s achievements to the gendered sphere under patriarchal hegemony, Mitchison positions these qualities as markers of women’s superiority over men. As Lynda Birke asserts: “it has sometimes been politically expedient for feminists to make [the] claim” of “an essentialist view of gender” (244).

However, in her presentation of the alien graft, Mitchison does engage with an interrogation of reproductive technologies that moves beyond the notion of gender representation within the scientific workplace and highlights the harms associated with scientific progressiveness and objectivity. Further, Mary’s work as a communications officer (particularly her experience with a



starfish-like radial species) attempts to undermine dichotomies and to challenge stereotypical binaries such as subject/object, scientist/woman, hard science/soft science, reason/emotion, and mind/body (Donawerth 2, Buran 253–254). As Donna Haraway highlights in *Staying with the Trouble*, the relationship between science fact, speculative fabulation and speculative feminism is intimate and entangled: “Science fact and speculative fabulation need each other, and both need speculative feminism” (3). Thus, as Squier argues, Mitchison’s novel explores practices and technologies that “oscillate between the potential for emancipation and control, and thus challenge human beings to remain continually alert to the unconscious fantasies embedded in [the] seemingly neutral” (264).

As Ursula K. Le Guin posits in *The Carrier Bag Theory of Fiction*, there may still be non-hierarchical systems of thinking and doing in which, as Haraway writes in *Staying with the Trouble*, science fiction and science fact can cohabit happily (7):

Science fiction ... is a way of trying to describe what is in fact going on, what people actually do and feel, how people relate to everything else in this vast sack, this belly of the universe, this womb of things to be and tomb of things that were, this unending story .... Still there are seeds to be gathered, and room in the bag of stars. (Le Guin 170)

#### 4. Alien Grafts

In Mitchison’s novel, the interplay between science fact and science fiction is explored when protagonist Mary agrees to have two alien grafts fused to her own body (as part of her ongoing effort to explore new ways of communicating and connecting with non-human species): “I was aware that it was an exciting and novel piece of research. We decided to put the graft on my thigh, where there would be ample blood supply” (Mitchison, *Memoirs* 49). Mary soon begins to form an intense psychological and physical bond with her graft which she likens to pregnancy: “As the graft grew, I began to have feelings of malaise, of the kind which one understands to be common during pregnancy” (*Memoirs* 49).

As the alien graft continues to grow, it explores the surfaces of her body, returning frequently to the orifices of the mouth and, likely, the vaginal opening: “By now Ariel was three feet long. It liked to be as close as possible over the median line, reaching now to my mouth and inserting a pseudopodium delicately between my lips and elsewhere” (*Memoirs* 51).<sup>6</sup> Sarah Shaw argues that Mitchison’s open exploration of female sexuality and what she terms “the deviant erotic” is a radical and threatening counter to the perceived public identity of women (and mothers in particular) during this period. She writes, “it is only with the metaphorical child that details of organ and orifice, sensation and movement can be detailed ... this explicit language speaks to Mitchison’s concern with female sexuality” (163). The conflation of interspecies sex with a mother’s erotic pleasure subverts both political and scientific binaries “connecting women’s scientific work and public identity with satisfying

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<sup>6</sup> This depiction evokes Japanese artist Hokusai’s *The Dream of the Fisherman’s Wife* (1814).

sexuality over a period of months in a deviant erotic that cannot be separated from life” (142). This demolition of the boundary between private and public spheres of womanhood to portray the more genuine and complex life maps to the dismantling of the boundaries between motherhood and female sexuality. Similarly, Mitchison associates this reconceptualization of motherhood with a post-capitalist future in which the world of work does not infringe upon maternal relationships and vice-versa.

Mary’s experience with the alien grafts at first enables an exploration of the body (both political and intimate) from a position simultaneously estranged and near, removing barriers between conceptions of selfhood and otherness. As Anna McFarlane argues, Mitchison’s narrative “represent[s] a contingency, not just of human bodies, but of the concept of the body itself” (291). At the same time, biological determinism and social constructionism are blurred and disrupted. Mitchison subverts scientific and theoretical presuppositions and offers an experiential maternal account that foregrounds emotion and subjectivity and emphasizes female sexuality. As Shaw states, “sensuality, love, spirituality and politics unite in the erotic” (145). Mary feels herself becoming gradually consumed by the graft. This occurs first in a mental capacity:

I found myself thinking endlessly about the graft, or rather not thinking, but mauling about it. I could not think of it without a name, and I named it to myself with splendid inappropriateness, Ariel. I had a feeling it was part of me, in the same way that Ariel and Caliban are part of Prospero (*Memoirs* 49–50).

Then it is portrayed in a physical capacity: “Somehow it was – how can I express it? – flesh of my flesh” (167). It is worth lingering for a moment on the numerous references made by Mitchison to Shakespeare’s *The Tempest* and on how they might frame the complex nature of Mary’s relationship to the graft. Such references not only indicate that Shakespeare’s influence continues to persevere into this far future but align Mary’s relationship to the graft with the submission of Ariel under Prospero and in Prospero’s eventual rejection of a system which perpetuates such marginalization. Beyond the references to the unrecognized care labor of motherhood and the conflation of female sexuality with deviancy that Mitchison makes in her portrayal of the grafts, her Shakespearean references prompt readers to recognize the hierarchical relationship between human and non-human other at play in this experiment.

As Mary equates the graft with feelings of pregnancy, there is a definite link between her experience and Adrienne Rich’s description of pregnancy as a continuum by which the “inhabitants of the female body” are both a welcome and unwelcome presence, simultaneously alien and familiar (63–5). She contends that the representation of fetus as alien “invader” can be tied to instances of sexual violence or what Niles Newton calls, “the conditions of conception – frequent undesired sex and the absence of orgasm” (24–6). As she gradually becomes subsumed by the graft’s needs and desires, Mary begins to act violently towards her colleagues who are tasked with supervising the experiment. This escalates into an eventual emergency severing of the graft from her body:

I had ceased to be a civilised scientist. I bit Françoise, my pupil. I hit Pete a crack on his bitten and inflamed arm and he let me go .... I was stronger than he was, younger and stronger .... Then Olga cut the neck of the graft, cut into it, into me -. (Mitchison, *Memoirs* 168)

Mitchison depicts the abnegation of the self as a critical aspect of Mary's experience of alien motherhood: "What I am fairly certain of is that I was completely under the influence of the graft, except that far down, almost smothered, there was still a very small, quietly struggling observer" (*Memoirs* 167). While (as I will return to in the following section) there are potential methods for navigating and overcoming this fear of "losing" the self which often accompanies notions of empathy in popular psychology, in this instance Mitchison is expressing legitimate fears surrounding pregnancy as parasitism. Here, science ends in loss as Mary becomes overwhelmed by grief following the graft's removal: "Instead of being relieved by the separation, I felt I couldn't bear it" (*Memoirs* 50–1). Although the care labor associated with motherhood and the labor of the scientific workplace are supposedly treated with equal value and respect in the post-capitalist society of *Memoirs*, there are indications (like Mary's experience with the graft) that this is perhaps not entirely true. Indeed, it appears as though the potential emotional, physical, and mental trauma associated with pregnancy and motherhood has not been grappled with, nor has there been much attempt to rectify the gendered one-sidedness of such experiences.

Published the same year as *Memoirs*, Betty Friedan's *The Feminine Mystique* relayed with shocking clarity the disillusionment and frustration of women who, despite university education or full-time employment, remained primarily considered by society as wives and mothers. One woman wrote: "I'm desperate. I begin to feel I have no personality. I'm a server of food and a putter-on of pants and a bedmaker, somebody who can be called on when you want something. But who am I?" (16–17). As Sümeyra Buran highlights, "the postwar patriarchal ideology imposed the idea that women need to choose either their family or their career because having both are regarded as 'unnatural'" (254).

Mitchison herself grappled with such guilt following the death of her first-born son. As outlined by biographer Jenni Calder, Mitchison felt as though she was in some way personally responsible for her son's death due to her preoccupation with her professional life and numerous resultant trips away from home during his lifetime:

Inevitably, she felt guilty. She was living a complex professional and personal life, the well-known author of fiction, a collection of poetry, and articles and reviews .... Had she, perhaps, neglected her children? If she had behaved differently, been less ambitious, striven less for love and recognition, could she have protected her son from his fatal illness? (112)

This, as with Mary's experience with the graft, is reminiscent of Jacqueline Rose's insistence that we must recognize "what we are asking mothers to perform in the world – and for the world" (2). Yet, despite the limitations of gender essentialism experienced by Mary during her time with the graft (which can be linked to the exclusion of women from scientific study, the violation of women's bodies by the practices of reproductive science, and the unequal burden of reproductive labor), this alien encounter nevertheless presents a form of gestational labor which is utterly independent of a person's

reproductive organs. This, then, demonstrates that Mitchison was also willing to engage with the potential for a non-essentialist reconceptualization of science that breaks with the contrasted binaries of gender.

Mary's experiences with the grafts again convey the complexities and contradictions of Mitchison's relationship with science and feminism, simultaneously occupying differing points on the spectrum between Harding's two questions: "What is to be done about the situation of women in science?" and "Is it possible to use for emancipatory ends sciences that are apparently so involved in Western, bourgeois and masculine projects?" (9). On one hand, the experiment is fairly radical in its positioning of Mary and the graft as neither subject nor object of scientific research. Instead, such research necessitates subjectivity, embodiment, and understanding, which may disrupt categorical conceptions of self and other (both human/alien and scientist/object of study). Mary has, according to Squier, "underestimated the extent to which a creature seemingly separate from her can influence and shape her own experience – both mentally and physically" (187). Similarly, Mary's association of the experience with that of pregnancy raises the possibility of non-gender-specific mothering which exists outside heteronormative control and is disassociated from sexual reproduction (particularly as the graft grows and Mary's role transcends that of the surrogate mother, instead moving towards mental and emotional absorption by the graft). This is also apparent in the potential sexuality of the graft and host relationship, which extends beyond maternal care. Further, the grief Mary experiences with the eventual removal of each graft reflects Mitchison's own maternal struggle, therefore breaking the boundaries not only between self and other, scientist and object, but also between author and character.

On the other hand, however, Mitchison continues to connect pregnancy and mothering to an innate femininity as Mary argues her female biology can provide a unique perspective into the alien symbionts that is impossible for male science to achieve: "I don't believe this is a man's job. You ought to get a woman to do it. She'd get a better relation with the graft" (*Memoirs* 44). Indeed, this is not merely Mary's own hypothesis – when the grafts attach themselves to species on their own planet, the host, they are only sustained by "maternal" feelings: "If the accidentally chosen host was a male, the graft did not arouse 'maternal' feelings, was looked upon as a nuisance ... and was, sooner or later, rubbed off" (*Memoirs* 146). Similarly, while one of Mary's grafts perishes in the early stages of the process (again mirroring Mitchison's own experience of maternal grief), another must be forcibly removed by Mary's colleagues due to changes in Mary's personality as her behaviors become influenced by the graft's emotional state. The reasoning given for the necessity of the removal is primarily that Mary is becoming "anti-scientific." Once "completely under the influence of the graft" Mary has "ceased to be a civilised scientist," regressing into a "pre-intellectual state" (*Memoirs* 164–168). Thus, reproductive technologies continue to reinforce a hierarchy of rationality and empiricism (blocking new subjective and anti-binary modes of scientific thought and practice from full realization), which continues to perpetuate traditional gender roles. Despite the novel's far future setting, Mitchison continues to associate reproductive technologies with the medicalization of birth and the commodification of female bodies.

The continued presence of pregnancy and childbirth (whether via sexual reproduction with human or alien, or in the form of an alien graft akin, at least in some form, to surrogacy) in Mitchison's novel and the persistently gendered

framework surrounding the role of mother and maternal care associations requires some discussion of reproductive futurism. The term “reproductive futurism,” as developed by Lee Edelman, denotes a political order by which the social good is unequivocally tied to a human futurity that is underpinned by the figure of the child and sexual reproduction (11). Indeed, this view of reproduction has been utilized throughout history to couple sexuality with domesticity, repeatedly reaffirming and naturalizing such formulations (Sheldon, “Somatic Capitalism”). Images surrounding childbearing and the child continue to be idealized, in spite of what Amber Lea Strother terms “the physical and emotional costs of reproduction” (v). Further, in Edelman’s attack on reproductive futurism, *no future* signals the organization of sociality, happiness, and citizenship around heterosexuality (emblemized by the figure of the child) which posits queerness, or rather the figure of the queer, as antithetical to futurity (Edelman 28 and Fontenot 253). In her portrayal of motherhood and in Mary’s celebration of innate feminine qualities, Mitchison does not consider or interrogate the relationship between sex and gender, reinforcing traditional gender roles while rejecting identities that do not conform with a societal “progression” reliant on reproductive negotiations or reformulations.<sup>7</sup>

While Mitchison certainly falls victim to the perpetuation of gendered notions of reproduction and a reliance on the figure of the child, which might foreclose avenues of queerness, *no future* also implies that the “future” upheld by the figure of the child is merely an empty replication of our present, an infinite deferral of whatever is coming next: the figure of the child “enacts a logic of repetition that fixes identity through identification with the future of the social order.” (Edelman 25). As Rebekah Sheldon writes on the implications of Edelman’s work, “The figure of the child stands in for a futurity that strips the future of everything but repetition and yet insists that repetition is progress” (*The Child to Come* 36). In Mitchison’s novel, she does not idealize the experience of pregnancy and motherhood, again breaking the boundary between author and character in experiential and emotive reference to her own maternal grief. Similarly, her portrayal of reproductive technologies, the medicalization of the body, and the rational scientific institution which together continue to foreclose new methods of inquiry that might disrupt gendered hierarchies and the boundaries of self/other indicate Mitchison’s acute awareness of the pretence that repetition is progress.

## 5. Conclusion: Breaking Down Binaries

However, it is evident within the novel that some attempts at communication with alien life forms, namely those who don’t think “in terms of either-or” (Mitchison,

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<sup>7</sup> Mitchison’s later SF novel *Solution Three* (1975) grapples even more closely with these concerns; it is set in a far future where humanity, aided by a new cloning programme, is moving towards a monocultural society. Heterosexuality and sexual reproduction are banned as they are thought to perpetuate an “aggressive” society, and homosexuality is instead hormonally enforced. All clones are to be birthed from the DNA of one man and one woman, and embryos are implanted into surrogate “Clone Mums” who must carry and birth these children without forming emotional attachments. It is soon discovered, however, that (akin to Mary’s experience with the graft) some of the Clone Mums’ DNA has mixed with that of the embryos.

*Memoirs* 18), require the development of processes previously devalued by the intellectual tradition, processes that draw on subjectivity, embodiment, and identification and that necessitate the disruption of the subject/object and self/other binaries. One such instance occurs when Mary attempts to establish communication with a new alien species whose “evolutionary descent had been from a radial form, something like a five-armed starfish” (*Memoirs* 11). She finds that the radiates have developed from “a budding spiral” which “had remained throughout evolution and completely dominated all mental and psychic process” (*Memoirs* 11). At first Mary considers the radiates so estranged from binary modes of human thought that communication may be impossible: “One is so used to a two-sided brain, two eyes, two ears, and so on that one takes the whole thing and all that stems from it for granted” (*Memoirs* 18). However, as she begins to employ a situated empathy, focusing her efforts on an imaginative and emotional rather than biological or empirical understanding, she is able to transcend previous limits of scientific enquiry.

As Squier writes:

Mitchison suggests that even to identify with the object of scientific knowledge can remap the boundaries of scientific investigation, reshaping the kinds of questions a scientist asks, the relationship between the subjects and objects of scientific knowledge, even scientific practises themselves. (180)

The relocation of the scientific object from periphery to centre requires a commitment on the part of the researcher to an intimate and situated empathy, despite the challenges such a commitment might bring. Empathetic and imaginative association are critical components of the feminist reconceptualization of science relayed through Mary’s experience.

However, as she finds herself becoming more adept at inter-species communication, her individual identity begins to blur in the wake of such intense association: “These were, however, group names shading into one another. Slowly I began to forget my own name” (*Memoirs* 19). Ironically, as Donawerth highlights, it is “because of her identification with a species which operates differently” that she “is unable to function as a member of her own species” (33):

Even while one admitted that moral and intellectual judgements were shifting and temporary, they had still seemed to exist .... But after a certain amount of communication with the radiates all this smudged out .... If alternative means, not one of two, but one, two, three, or four out of five, then action is complicated ... two or more choices could be made more or less conflicting though never opposite. (Mitchison, *Memoirs* 18–19)

The value Mitchison places upon care, empathy, and imaginative identification in the wake of a long history of oppressive medical practices attempts to resist repeating exploitation in favor of a science which values collaboration and benevolence. Furthermore, the empathetic practice which Mitchison advocates extends its influence outside of the scientific realm, possessing much wider implications for the social configuration of the self and other.

Megan Boler writes on the extreme difficulties of attempting to employ an active empathy, which, unlike superficial compassion or sympathy, must involve an inward gaze and result in self-accountability: “our silence shall not

protect us, nor passive empathy protect the other from the forces of cataclysmic history that are made of each of our actions and choices” (273). She continues, “At stake is not only the ability to empathize with the very distant other, but to recognize oneself as implicated in the social forces that create the climate of obstacles the other must confront” (257). Yet despite the difficulty and disorientation of such extreme empathy, the challenging nature of such work is equated with positive progression towards a new understanding of science that renegotiates concepts of sameness and difference and interrogates binaries of subject object. It is Mary’s attempt at such empathy and care (the means purposefully estranged from any notion of idealized ends) in *Memoirs* that sparks a realization on the necessity for methodological reform:

But they never thought in terms of either-or. It began to seem to me very peculiar that I should do so myself, and that so many of my judgements were paired: good and evil, black or white, to be or not to be. (Mitchison, *Memoirs* 18)

This critical empathy can also be conceptualized as part of what Rosi Braidotti terms “a feminist figuration.” Inspired by Haraway’s work on figurations, Braidotti argues that a feminist figuration can be defined as “a politically informed account of an alternate subjectivity” (*Nomadic Subjects*, 1).<sup>8</sup> Drawing on both Braidotti and Haraway, Ingvil Hellstrand summarises these figurations as “conceptual tools for rethinking and refiguring the parameters of how we understand and perform identities and ontologies ... (re-)conceptualizing conventional categories that determine structures of differentiation, such as gender, sexuality, and race” (“From Metamorph to Metamorph?” 1). In her recent work *Posthuman Feminism*, Braidotti even goes so far as to include not only empathy but care, compassion (for both human and non-human), and the speculative imaginary (all of which Mitchison draws upon in *Memoirs*) as key traits of such figurations. These features work alongside one another, tangled and simultaneous. She writes:

The feminist style of posthuman figurations favours a cognitive brand of empathy, combining the power of understanding with the capacity for compassion and the force to endure ... it also cultivates longings and care for ... all sorts of non-human entities. Posthuman feminism dares to dream, even and especially among the ruins of our damaged planet, yearning for ways out. (216)<sup>9</sup>

As a speculative fiction text, *Memoirs* employs empathy, care, and compassion to acknowledge and interrogate the socially constructed nature of scientific practices and gendered binaries. While not achieving straightforward utopian successes, Mary’s willingness to attempt, and crucially to *work at*, such intense association with what initially appear as non-human “Others” makes way for a potential alternative scientific method. Her experience with the alien graft enables the removal of barriers between concepts of selfhood and otherness while interrogating the perceived public identity of mothers during this period

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<sup>8</sup> See Donna Haraway’s work on figures such as the trickster or coyote in “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” the cyborg in “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,” and companion species in *The Companion Species Manifesto*.

<sup>9</sup> See also Anna Tsing, Heather Swanson, Elaine Gan and Nils Bubant’s edited volume *Arts of Living of a Damaged Planet*.

by exploring both pleasure and trauma. In conclusion, Mitchison's portrayal of alien mothering and interspecies communication gestures towards a model of scientific study where empathy and care are valued, where the unstable boundaries between self and other can be interrogated, and where structures of sameness and difference might be revised. Mitchison's emphasis on relationality, emotion, contextual particularity, and empathy shed light on the radical possibilities of engaging with care in the scientific field.

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