

Research Article

Mothering at the Edge of Time: Ectogenesis, Gestational Communism, and the Ironic Cyborg in Marge Piercy's *Woman on the Edge of Time*

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Abstract: Every person now alive was gestated inside a body. Artificial womb technology promises to change that, and the feminist tradition has never agreed on what the change would mean. This paper reads Marge Piercy's *Woman on the Edge of Time* (1976) as the century's most searching attempt to hold that disagreement open rather than resolve it. Against readings that take the novel as either a straightforward emancipatory utopia or a cautionary tale, I argue that Piercy stages ectogenesis as an *ironic* cyborg utopia in Donna Haraway's precise sense: the technology liberates only under conditions of collective ownership, and the same device, transposed into neoliberal biocapitalism, becomes an instrument of domination. The novel's brooders do not abolish the mother; they redistribute her, most vividly in the image of men who lactate and wet-nurse. Reading this redistribution alongside Shulamith Firestone's call to overthrow the "sex class," Herbert Marcuse's account of technological rationality, and Melinda Cooper's analysis of life as biocapital, I show that the question the novel poses is not whether machines can gestate but *who controls the machine*. Speculative fiction functions here not as prophecy but as method: a mode of feminist fabulation that makes the political condition of a technology visible before the technology arrives. The paper thus intervenes in current debates over ectogenesis by insisting that its emancipatory potential is entirely conditional, and that the condition is a revolution the present forecloses.

Keywords: artificial wombs; biocapital; cyborg; ectogenesis; feminist fabulation; gestational communism; reproductive technology

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1. Introduction

Can a machine be pregnant with a human child? The question sounds like a scene from *The Matrix* or *I Am Mother*, but it names a research programme now moving toward human trials. Several teams have sustained extremely premature lambs in fluid-filled devices that approximate the uterine environment, and the prospect that gestation might be partly, and one day wholly, relocated from the body to the machine is no longer confined to speculative fiction. What that relocation would *mean* is a different question, and it is the one feminism has argued over for half a century. The same technology has been described as the instrument of women's final liberation and as the last enclosure of their bodies. It cannot be both by accident; the contradiction is the subject of this paper.

Radical inventions, as the sociologists of technology remind us, are the geneses of new systems, and the meaning of any innovation is decided in the social context that receives it, not in the artifact itself. Technology is not a neutral collection of tools but a product of social construction, and when a machine begins to replicate an activity as saturated with meaning as gestation, the human and the machinic become difficult to hold apart. Donna Haraway rejects the ontological divide between organism and technology altogether: we are already cyborgs, and the line between the organic and the inorganic; between the gendered body and the device that supplements or replaces it is already blurred. To gestate a child outside the body is to press that blur to its limit and to raise the question that follows from it: what happens to the category "woman," that unstable unity Judith Butler taught us to distrust, when gestation is taken out of embodied, gendered corporeality?

I pursue that question through Marge Piercy's *Woman on the Edge of Time*, a novel that imagines exactly this relocation and refuses to make it simple. Criticism has long read the novel as a



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landmark of 1970s feminist utopianism and, more recently, reframed it through contemporary theories of time, mourning, and futurity; a parallel and growing body of scholarship now treats feminist science fiction's artificial wombs as the imaginative testing-ground for the ethics of ectogenesis itself. My reading departs from both by locating the novel's force in the *conditionality* it builds into its own utopia. In the utopian community of Mattapoisett, children are gestated in "brooders," (Piercy 1976) every child has three co-mothers of any gender, and men lactate and nurse. Piercy's imagined future realizes Firestone's dream of overthrowing biological reproduction as the ground of women's oppression, yet the novel frames that future not as an accomplished good but as an *ironic* achievement: blasphemous, hard-won, and reversible. My argument is this: Piercy's brooders are emancipatory only because Mattapoisett has first abolished the hierarchies of class, race, and capital that would otherwise capture the technology; read against the neoliberal present, in which gestation is being progressively commodified, the artificial womb portends not liberation but a more complete domination. The novel's true subject is therefore not the machine but the question of who owns it.

My method is to treat speculative fiction as what Marleen (Donahoo and Barr 1994) calls feminist fabulation: a deconstruction of the culture's dominant reproductive myths from within, an imagined alternative that defamiliarizes what patriarchy has naturalized. Oscar Wilde's aphorism that life imitates art more than art imitates life is, in the domain of reproductive technology, close to literal, speculative fiction anticipates and helps to shape the biotechnical agendas that follow it, since it is technological imagination, as Anne Balsamo argues, that constructs innovation and carries its cultural consequences (Balsamo 2011). Reading the novel becomes a way of interrogating what kind of human beings we are in the process of becoming. The paper proceeds from the technology itself, to the utopian tradition and its quarrel over reproduction, to the humanist subject that the maternal body has always threatened, to Piercy's redistribution of motherhood, to Haraway's ironic cyborg, and finally to the biocapitalist present against which the whole utopia must be measured.

2. What is an artificial womb?

All of us so far have been born of a body. Artificial placentas, artificial amnion, and the fluid-filled "biobag" threaten to change this fundamental condition of human existence, outsourcing the labour of gestation from the body to the machine. It is important, however, to be precise about what the technology currently does and does not do, because the debate is repeatedly damaged by conflating two very different things.

Partial ectogenesis, the object of current research, transfers an extremely premature neonate, born at roughly twenty-four to twenty-eight weeks, before the lungs can safely draw air into a device that continues the fetal condition: oxygenated blood circulation and placental gas exchange that spare the underdeveloped lungs, immersion in amniotic fluid, and nutrient supply through an artificial placenta. Its aim is therapeutic, to reduce the mortality and lifelong morbidity of the extremely preterm. *Full* ectogenesis, by contrast, would carry a pregnancy from conception to term entirely outside a body, eliminating the gestating person altogether. As Elizabeth Chloe Romanis (2018) argues, these are not points on a single line but categorically distinct: a distinction Elseltijn Kingma and Suki Finn sharpen through the metaphysics of pregnancy: partial ectogestation concerns a subject that has already left the maternal body and shares physiology with the fetus, whereas full ectogenesis concerns embryos and fetuses for whom birth, as we understand it, never occurs.

The extent to which full ectogenesis is technically feasible remains unknown. What its proponents observe is suggestive: the first days of embryonic life are already sustained *ex utero* in the IVF laboratory, and roughly the final weeks of a pregnancy can already be sustained in neonatal intensive care, so that the biological womb is required for an ever-shrinking interval in the middle. It is at this juncture where the two ends of gestation are already externalized and the remaining span is narrowing that I situate the paper, and I situate it through speculative literature, because it is precisely the uncertain, not-yet-real middle that fiction is equipped to think. With pronatalist ideologies resurgent, birthrates falling across the advanced economies, and reproductive agency increasingly a site of coercive policy, the stakes of that thinking are not academic.

3. Utopia and feminist fabulation

Why has it been necessary for feminists to imagine utopias at all? Utopia, as Patricia Stapleton and Andrew Byers put it, is a claim about what a good life could and should be not a dream to be enjoyed but a vision to be pursued, and it is born of the hunger for something better and the hope that sustains the imagining of it (Stapleton and Byers 2015). For the feminist utopian tradition, that hunger has a specific object: a social order not built on women's reproductive subordination. Vandana Shiva (1989) locates the crisis of the modern world in the devaluation of a sustainable economy of harmony between nature's work, women's work, and men's work; the feminist utopia is one attempt to imagine that harmony restored.

The intellectual charge of that project is best captured by Firestone. Revising Engels, she relocates the origin of oppression from economic class to a *sexual* class, the original division of labour between the sexes, grounded in differential roles in reproduction and naturalized as a fundamental biological condition. History becomes a dialectic of sex. For Firestone the condition itself must be changed, and only an all-embracing revolution can change it; she welcomed reproductive technology as an ally in that revolution, envisioning the uprooting of reproductive oppression through the outsourcing of gestation. Pregnancy, on her account, is a barbaric and temporary deformation of the body for the species. Piercy's Mattapoisett is the literary realization of exactly this vision, a world in which the sexual class has been dissolved because gestation has been disembodied and motherhood opened to all genders.

Kathy Rudy (1997) places *Woman on the Edge of Time* within a genre of separatist feminist utopian fiction that treats reproduction, birth, and child-rearing as the sites of women's oppression. But she draws a crucial distinction: Piercy's novel resolves that oppression "not by eliminating men but by reconfiguring reproduction." This is what makes the book more interesting than a simple inversion. It does not banish the male; it dismantles the arrangement whereby gestation belongs to one sex and confers on that sex both a special status and a special subordination. Barr's category of feminist fabulation names the technique: such works refract the dominant myths of sex, gender, kinship, and marriage through an altered reality, and in doing so make visible the patriarchal dictates we had mistaken for nature. The reader who recoils at three co-mothers or at nursing men is being shown the reflex by which patriarchy is maintained.

4. “What a great miracle is man”: humanism and the maternal body

To understand why the maternal body must be managed: dissected, mystified, enclosed, one must see what it threatens. Utopia is a child of humanism, and humanism, for all its iridescent variety from Cicero to Marx, rests on the centrality of Man. That Man is tacitly particular: white, able-bodied, self-possessed, the indivisible subject of the Western philosophical tradition. The maternal body calls that indivisible subject into question, because it is a body that is, for a time, two. A subject that can divide is an affront to a philosophy built on unity, and so the womb became an object of suspicion and of knowledge: a darkness to be exhumed and made singular.

The womb, I want to suggest, became a *discursive formation*. Silvia Federici shows how the rise of capitalism entailed the violent expropriation of women’s reproductive knowledge: the midwife’s craft was obliterated by a masculine obstetrics that made the female body an object for dissection and rational management. Shiva names the same process in the register of science: modern Baconian science constituted itself as a gendered, patriarchal activity that usurped older knowledges in which nature was a mother to be respected rather than a resource to be extracted, and it did so, she argues, to meet the political needs of emerging industrial capitalism. For Shiva the problem is not the misuse of a neutral science but the reductionist, masculinist constitution of that science itself. The de-mothering of nature and the technologization of gestation are, on this reading, one project: gestation without pregnancy, children without mothers, life relegated to the management of researchers and machines. (Shiva 1989)

The opening chapters of Piercy’s novel show the human cost of this order in the present. Connie Ramos, a poor Chicana woman, a welfare recipient, marked in advance as a suspect mother has her daughter Angelina taken for adoption without meaningful consent and is confined to a psychiatric institution for an act of self-defence. Her friend Dolly is beaten and coerced into a pregnancy she does not control. These women are subject to a system that surveils and punishes their reproduction while denying them authority over it. It is against this dystopian present that Mattapoisett appears, and the visit of Luciente: a plant geneticist from the future, begins to defamiliarize the arrangements Connie has taken for the order of things.

5. Gestational communism and the wet-nurse

Connie’s first response to Mattapoisett is revulsion. Confronted with the brooder and with the fact that each child has three co-mothers of any sex, she protests: “Three! That makes no sense! Three mothers!” (Piercy 1976)

She calls the brooder a “crazy mother machine” and its infants “bottleborn monsters,” and she is most disturbed of all by the sight of men with milk in their breasts nursing children: “how dare any men share that pleasure.” (Piercy 1976)

For Connie, womanhood is motherhood; to give up the exclusive capacity to gestate and nurse is to give up what made a woman precious, even if what made her precious was also what subordinated her. Patriarchy has taught her to experience her own dispossession as a special dignity.

This is the heart of the novel’s argument, and it turns on an image the criticism has tended to pass over: men who lactate and nurse. The image matters because it is the cleanest possible answer to the fear that haunts every debate about artificial wombs: that to externalize gestation is to make women obsolete. Mattapoisett shows the opposite. Feeding, long treated as inseparable from motherhood and from the female body, is here redistributed across sexes and across the community; and motherhood does not vanish but multiplies, becoming a role that anyone may occupy and that every child holds three times over. There is a historical rhyme worth naming: the outsourcing of infant feeding is not new. Wet-nursing, and later formula, already separated the act of feeding from the person who gave birth, and womanhood survived the separation. Piercy simply completes the logic and de-genders it. The lesson is that a maternal function can be redistributed without abolishing the mother, that what dies in Mattapoisett is not the mother but the *monopoly*.

Luciente explains the bargain plainly. Overthrowing the old hierarchies required women to surrender “the only power we ever had... the power to give birth,” because “as long as we were biologically enchained, we’d never be equal,” and because only then could men be “humanized to be loving and tender.” So, everyone became a mother; every child has three, to break the nuclear bond.” (Piercy)

Here the conflict Simone de Beauvoir located between woman as individual and woman as servant of the species is dissolved. Beauvoir described motherhood as riveting woman to her body like an animal, a species-immanence against which the male principle defined its superiority: “transcendence over immanence, technology over magic” (De Beauvoir and Parshley 1949) dethroning the great mother and rendering her, from sacred, unclean. Piercy inverts the dethroning without restoring the throne: the collective maternal identity of Mattapoisett neither venerates nor abjects the mother but distributes her, and technology is turned from an instrument of species-transcendence into an instrument of communal care. This is what I will call gestational communism a phrase Sophie Lewis (2019) has since made central to a contemporary politics of communal, de-privatized gestation, and which Piercy’s novel anticipates by four decades.

The society that sustains this arrangement is, as Joanna Russ (Johnson and Russ 1996) observed of the feminist-utopian mode, classless, without government, ecologically minded, and quasi-familial in structure. Yet if Mattapoisett dissolves the maternal monopoly, the pathology it treats has a name. Feminist psychoanalysis calls it womb envy, a desire, in Eva Kittay’s account, to possess not merely a named organ but its distinct childbearing capacities. Brian Luke (2007) identifies three strategies by which men have historically sought to appropriate women’s procreative role: compensation, revaluation, and appropriation, converting a continuous female capacity into a discontinuous, technologically mediated one, and Melanie Klein’s account of envy of the maternal breast supplies its affective grammar (Klein 1997). Read through this lens the artificial womb is ambivalent in the extreme: in Mattapoisett it redistributes the coveted capacity so that no one is dispossessed, but in a world still structured by envy and appropriation the same device would realize the fantasy Luke describes, the final severance of gestation from the women who once held it. Connie intuitively feels the danger when she recoils from nursing men; what she cannot see is that the recoil is patriarchy’s, not nature’s.

6. The ironic cyborg

That distribution of motherhood is, in Haraway's vocabulary, a cyborg achievement, and it is achieved in the mode of *irony*. A cyborg, Haraway writes, is a hybrid of machine and organism, a creature at once of social reality and of fiction, one that changes what counts as women's experience. It comes into being precisely where gendered work is lifted out of biological embodiment. Artificial gestation produces a cyborg identity: a partnership of fetus and machine that blurs the boundary between organism and device and, in doing so, loosens the grip of a gender-specific corporeal determinism, pushing toward a post-gender world in which, as Haraway puts it, replication is uncoupled from organic reproduction what Mary Harrington has more recently called the "return of the cyborg," a techno-optimist strand in which medical advance is imagined as freeing us from the constraints of embodiment. To be understood as cyborg is to resist the binary reductions by which the uterus binds "woman" within what Haraway calls the informatics of domination.

The crucial point is that Haraway offers the cyborg as an *ironic* myth, and irony, for her, never dissolves into unity. The cyborg is faithful to feminism, socialism, and materialism precisely by refusing resolution by holding domination and possibility together in a single figure. Mattapoisett's collective mother-consciousness is exactly this kind of ironic, blasphemous dream: it takes the sacred narrative of birth, the pain of childbirth as redemption from original sin, the virgin birth as the hinge of salvation, and lets the machine perform it, producing a utopia without innocence, a nostalgia knowingly held. Piercy celebrates the ontological blasphemy of a world that renounces the patriarchal, capitalist, hegemonic structure of the family, and the brooder becomes an instrument of subversion rather than of control.

But irony cuts both ways, and Piercy knows it. Susan Merrill Squier (1994) warns that the cyborg myth can carry an ancient masculine fetish, the desire to usurp and appropriate women's procreative power. Haraway's cyborg holds both faces: the grid of control and the kinship between human and machine. As Evie Kendal (2026) observes, whether a given reproductive future reads as utopian or dystopian is itself relative to the reader's values and standpoint; the novel's irony is the formal acknowledgement of that relativity rather than an evasion of it. Which face the artificial womb turns toward is not settled by the technology. It is settled by the social order that deploys it, and it is to that order that the argument must now turn.

7. Biocapital and the one-dimensional womb

Read against the neoliberal present rather than against Mattapoisett, the same cyborg looks very different. Melinda Cooper's *Life as Surplus* shows how, under neoliberal capitalism, the biotechnological revolution turns the basic units of life into biocapital, how life at the cellular level, by virtue of its self-generative potential, becomes a source of surplus value. Reproductive technologies are emblematic of this biopolitics, one of the four pillars of advanced capitalism biogenetics, nanotechnology, information technology, and neuroscience that Rosi Braidotti enumerates. IVF already runs on a global egg market and a constant supply of reproductive labour, extracted to maximize surplus; Cooper (2011) traces the logic to the livestock industry, where superovulation, frozen embryos, and artificial insemination were deployed to wring the most from each unit of reproductive labour and to abolish "unreproductive time." Transposed to human gestation, the promise of the artificial womb is the promise of producing human lives at a surplus. Couple ectogenesis with abortion bans and the number of unwanted lives requiring state management rises; couple it further with gene editing and embryo selection, and the "surplus life" of the biocapitalist imagination shades into something frankly dystopian.

Herbert Marcuse gives this its social-theoretic name. In advanced industrial society, technology becomes a form of domination that operates not by force but by rationality: technological rationality standardizes, absorbs, and one-dimensionalizes, dissolving the free subject into the smooth functioning of the machine (Marcuse 1964). A fully mechanized gestation would sever birth from human biology so completely that the person who chose to carry a pregnancy would appear as a deviation from the norm, an exception to the law of technological rationality. This is the shadow over Mattapoisett's own bargain. There, women gave up their power in exchange for "no power for anyone"; but a peace secured by universal dispossession raises, rather than settles, the question of choice. Technology arrives at a cost a totalizing, one-dimensional order maintained through compliance, and the difference between Mattapoisett and Marcuse's administered society lies entirely in *who* administers, and to what end.

That is why the decisive question is not whether machines can gestate but who controls the machine. Piercy states it directly in her introduction to the novel: what matters is who controls technology in any given society at a particular time. The Xenofeminist Manifesto makes the same demand programmatic, technological innovation must anticipate its systemic conditions, and technology must be wrested from the grip of the few and made a matter of community ownership. Piercy's utopia is legible as a Xenofeminist one: its brooders are emancipatory *because* they are commonly owned, operated within a society that has already broken class and race hierarchy through revolution. Absent that revolution, the identical device, introduced into a world that commodifies and technologizes gestation, becomes what the pronatalist tech-right could use to strip reproductive freedom rather than extend it, a more total version of the enclosure that abortion restriction has already begun. Haraway's own hope, that liberation rests on constructing a consciousness of oppression and so of possibility, points the same way: the technology cannot deliver freedom; only a politics can.

8. Conclusion: "equal to whom?"

Should we embrace the artificial womb? The novel's answer is neither yes nor no but a question returned in a sharper form. Luce Irigaray warned that the feminist demand for equality begs a prior question: equal *to whom*? Since to be made equal to the male subject of a patriarchal order is not liberation but assimilation. *Woman on the Edge of Time* refuses that trap. It does not ask women to become equal to men within the existing order by acquiring, or being relieved of, the capacity to gestate. It imagines an order in which the terms of equality have themselves been remade, in which gestation is neither a woman's burden nor a woman's privilege because it is no longer anyone's monopoly.

This is why the novel's utopia is instructive precisely as an *ironic* and *conditional* one. Piercy is explicit that Mattapoisett is not a destination that technology will deliver but the fragile product of a revolution and, tellingly, she later admitted she would preserve biological pregnancy as an option rather than replace it wholesale, a revision that concedes the danger in any single,

mandated model of reproduction. The paper's claim throughout has been that the artificial womb has no meaning of its own. Under collective ownership it is the instrument of Firestone's revolution and Haraway's ironic cyborg; under neoliberal biocapital it is Cooper's surplus-machine and Marcuse's one-dimensional order. What decides between them is not the device but the distribution of power around it the very thing the novel makes visible, and the present forecloses.

To say this is not to have it both ways. It is to specify a condition and to be honest about its cost. The condition is collective control of reproductive technology; the cost of failing to secure it is a domination more complete than the one it replaces. What the novel cannot settle what no novel can, is whether the revolution that would meet the condition is possible. That is the limit of fabulation and also its point. Speculative fiction does not predict the future; it renders the political stakes of a not-yet-real technology available to thought before the technology arrives to settle them for us. Piercy's brooders, read at the edge of our own time, do not tell us whether to build the artificial womb. They tell us that the question worth arguing is who will own it, and that we are running out of time to answer.

References

- Balsamo, Anne. 2011. *Designing Culture: The Technological Imagination at Work*. Duke University Press.
- Donahoo, Robert, and Marleen S. Barr. 1994. Lost in Space: Probing Feminist Science Fiction and Beyond. *American Literature* 66 (4): 866. <https://doi.org/10.2307/2927734>
- De Beauvoir, Simone, and H. M. Parshley. 1949. *The Second Sex*. <https://cds.cern.ch/record/2728998>
- Bijker, Wiebe E., Thomas P. Hughes, and Trevor Pinch. 1987. The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology. MIT Press, January. <http://www3.ub.tu-berlin.de/ihv/001737994.pdf>
- Braidotti, Rosi. 2013. *The Posthuman*. John Wiley & Sons.
- Bussière, Kirsten. 2019. Feminist Future: Time Travel in Marge Piercy's *Woman on the Edge of Time*. *Journal of Science Fiction* 3, <https://publish.lib.umd.edu/index.php/scifi/article/view/482>
- Butler, Judith. 1990. *Gender Trouble: Feminism and the Subversion of Identity*.
- Cooper, Melinda E. 2011. *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era*. University of Washington Press.
- Cuboniks, Laboria. 2018. *The Xenofeminist Manifesto: A Politics for Alienation*. Verso Books.
- Davies, Tony. *Humanism*. London: Routledge, 2008.
- Federici, Silvia. *Caliban and the Witch: Women, the Body and Primitive Accumulation*. New York: Autonomedia, 2004.
- Firestone, Shulamith. *The Dialectic of Sex: The Case for Feminist Revolution*. London: Verso, 1970.
- Haraway, Donna J. "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century." In *Simians, Cyborgs, and Women: The Reinvention of Nature*, 149–181. New York: Routledge, 1991.
- Harrington, Mary. "Return of the Cyborgs." *First Things*, January 11, 2022. <https://firstthings.com/return-of-the-cyborgs/>
- Hillman, David, and Ulrika Maude, eds. *The Cambridge Companion to the Body in Literature*. New York: Cambridge University Press, 2015.
- Irigaray, Luce. *je, tu, nous: Toward a Culture of Difference*. Translated by Alison Martin. New York: Routledge, 1993.
- Kendal, Evie. 2026. *Science Fiction and the Ethics of Artificial Wombs: Reproductive Futures*.
- Kingma, Elselijn, and Suki Finn. "Neonatal Incubator or Artificial Womb? Distinguishing Ectogestation and Ectogenesis Using the Metaphysics of Pregnancy." *Bioethics* 34, no. 4 (2020): 354–363. <https://doi.org/10.1111/bioe.12717>
- Melanie Klein, *Envy and Gratitude and Other Works 1946-1963*, 1997.
- Lewis, Sophie. 2019. *Full Surrogacy Now: Feminism Against Family*. Verso Books.
- Luke, Brian. 2007. *Brutal: Manhood and the Exploitation of Animals*. University of Illinois Press.
- Marcuse, Herbert. 1964. *One-Dimensional Man*.
- McBean, Sam. 2014. "Feminism and Futurity: Revisiting Marge Piercy's *Woman on the Edge of Time*." *Feminist Review* 107 (1): 37–56. <https://doi.org/10.1057/fr.2014.1>
- Piercy, M. 1976. *Woman on the Edge of Time*.
- Romanis, Elizabeth Chloe. 2018. Artificial Womb Technology and the Frontiers of Human Reproduction: Conceptual Differences and Potential Implications. *Journal of Medical Ethics* 44 (11): 751–55. <https://doi.org/10.1136/medethics-2018-104910>
- Rudy, Kathy. 1997. Ethics, Reproduction, Utopia: Gender and Childbearing in *Woman on the Edge of Time* and the Left Hand of Darkness. *NWSA Journal* 9 (1): 22–38. <https://doi.org/10.2979/nws.1997.9.1.22>
- Johnson, Jennifer, and Joanna Russ. 1996. To Write Like a Woman: Essays in Feminism and Science Fiction. *Tulsa Studies in Women's Literature* 15 (1): 170. <https://doi.org/10.2307/463987>
- Shiva, Vandana. 1989. *Staying Alive: Women, Ecology and Development*. <http://patterns.architexturez.net/doc/az-cf-172850>
- Squier, Susan Merrill. 1994. *Babies in Bottles*. <https://www.amazon.com/Babies-Bottles-Susan-M-Squier/dp/0813521173>
- Stapleton, Patricia, and Andrew J. Byers. 2015. *Biopolitics and Utopia: An Interdisciplinary Reader*. *Medical Entomology and Zoology*. <https://ci.nii.ac.jp/ncid/BB1931294X>
- Trebilcot, Joyce. 1984. *Mothering: Essays in Feminist Theory*. Rowman & Allanheld eBooks. <http://ci.nii.ac.jp/ncid/BA01294498>