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DIS/CORPORATIZATION: THE BIOPOLITICS OF PROSTHETIC LIVES AND POSTHUMAN TRAUMA IN *GHOST IN THE SHELL* FILMS

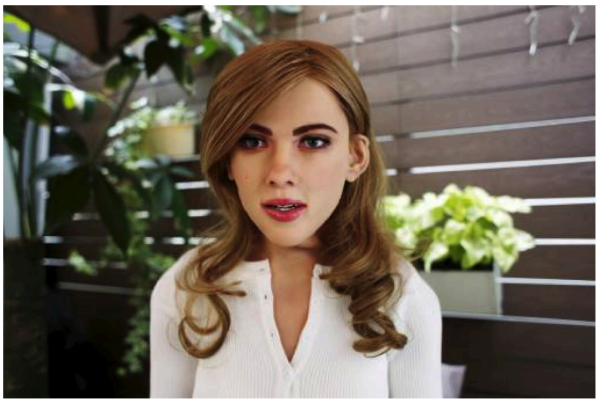
DONNA T. TONG

Abstract: *This paper explores the biopolitics both implicit and explicit in Mamoru Oshii's film duology Ghost in the Shell. The prostheticization of life for Major Motoko Kusanagi is based upon an objectification of a cyborg self enabled and literalized through technology that is also a (mis)representation that conflates the biological self and technological self, and Oshii further problematizes this representation with the complication of the commodification and trafficking of posthuman lives, explicitly examined in more critical detail in the second film, Ghost in the Shell 2: Innocence. In other words, Oshii arguably imagines the extreme end of biopower in a posthuman world as human trafficking structured by a globalized political economy.*

Résumé: *Cet article explore la biopolitique implicite et explicite dans la duologie de films de Mamoru Oshii Ghost in the Shell. La prothésisation de la vie pour le Major Motoko Kusanagi est basée sur une objectivation d'un cyborg habilité et littéraire à travers la technologie qui est aussi une présentation déformée qui confond le soi biologique et technologique, et Oshii problématise encore cette représentation avec la complication de la marchandisation et le trafic de vie posthumaines, examinés explicitement dans des détails plus critiques dans le deuxième film, Ghost in the Shell 2: Innocence. En d'autres termes, on peut avancer que Oshii imagine la fin extrême du biopouvoir dans un monde posthumain comme un trafic humain structuré par une économie politique mondialisée.*

PROSTHETIC LIVES AND HUMAN TRAFFICKING

In April 2016, media sources reported on how Hong Kong designer Ricky Ma had spent more than $50,000 USD to create and build a robot in the likeness of Scarlett Johansson (Glaser).



"The Scarlett Johansson Bot Is the Robotic Future of Objectifying Women" by April Glaser. Image: BOBBY YIP/REUTERS

"$50,000 robot that looks like Scarlett Johansson." *Insider*. YouTube. YouTube, 1 Apr. 2016. Web. 6 Jan. 2018.

This particular use of current technologies in 3D printing, prosthetics, and robotics is positively uncanny given the previous year's announcement of the same actress' controversial casting in a live-action adaptation of Mamoru Oshii's animated film *Ghost in the Shell*, a cyber-punk, dystopic film centered on cyborg technologies in a posthuman future.[1] Margo Kaminski observes that the ScarJo robot not only underscores the current "age of interactive celebrity," but also takes it to its technological endpoint. What is frightful about this new reality is not just the potential for privately or commercially manufacturing life-like robots (eerily actualizing Oshii's "gynoid," or sex robot, from *Ghost in the Shell 2: Innocence*), but that the fact, as April Glaser points out, "Johansson is literally being objectified" (Glaser). But what is the legal status of such usage of Johansson's image? According to Kaminski, "The commercial use of one's face or name without permission can be thought of as a privacy harm, founded in autonomy, dignity, or personhood," and is grounded in concerns about misrepresentation and resulting potential harm (Kaminski). As such, right of publicity cases where such misrepresentation is alleged "employ a trope of 'involuntary servitude,'" implying that using "a person's face without permission is like forcing that person to work at a job, harming their dignity" (Kaminski).

Interestingly, these issues of consent and (mis)representation involved in "involuntary servitude" are already entangled in Oshii's *Ghost in the Shell* duology. In the first film, *Ghost in the Shell* (攻殻機動隊 *Kōkaku Kidōtai* "Mobile Armored Riot Police"), Major Motoko Kusanagi and her partner Batou discuss her recent disenchantment with their work as agents for Section 9, a "public-security" government agency.[2] Kusanagi agrees with Batou that they are not enslaved to Section 9, but only up to a point: "We do have the right to resign if we choose, provided we give the government back our cyborg shells…and the memories they hold." How such memories might be "given back," however, is in no way clear. As a "fully-cyberized" being, Kusanagi apparently only retains her original organic brain; the rest of her body is literally manufactured and maintained by cybertechs employed by Section 9. In the second film, *Ghost in the Shell 2: Innocence* (イノセンス, *Inosensu*), which begins several years after Kusanagi's disappearance at the end of the first film, Batou ad-

mits to his new partner Togusa that, "Her brains and hardware were government property and her entire memory, including the classified information, were part of the deal." Under these circumstances, resignation would be a kind of literal termination. As such, Kusanagi's "prosthetic life" amounts to a form of "involuntary servitude," compelling continued employment as a public-security agent in order to preserve her continued existence and thus "harming" her dignity.

Many critics of Oshii's *Ghost in the Shell* films have focused on their representation of the posthuman from different angles.[3] In this paper I focus specifically on their biopolitics, which intertwine present and future-oriented concerns about the posthuman. The prostheticization of life for Kusanagi is based upon an objectification of a cyborg self enabled and literalized through technology that is also a (mis)representation that conflates the biological self and technological self. This problematic conflation is already hinted at in the characters' inability to distinguish their own memories from data, the latter of which can be appropriated as private property. This conflation of memory and data is widespread and undergirds many of our own misconceptions about human thought processes. In "The Empty Brain," Robert Epstein succinctly denounces popular-culture fantasies that equate the human brain with a computer. As he points out, unlike computers, humans are "*not* born with: *information, data, rules, software, knowledge, lexicons, representations, algorithms, programs, models, memories, images, processors, subroutines, encoders, decoders, symbols, or buffers*" (Epstein, original emphasis). To demonstrate the difference between human memory and data storage, Epstein recounts having a student draw a one-dollar bill from memory and then letting the student use an actual bill as an exemplar. The first drawing is invariably less detailed and accurate and shows that human beings do not "store" representations of objects as computers do, that people are "much better at recognising than recalling," since remembering, for humans, involves "try[ing] to relive an experience" rather than retrieving data from storage (Epstein). Thus, the idea of erasing or implanting memories already assumes that human brains are equivalent to computers; but this is a false assumption that the films elide.

In Oshii's dystopic future this conflation of the biotic and the technological, in fact, becomes the central means by which posthuman lives are commodified and trafficked. In *Ghost in the Shell*, Kusanagi's body is, in effect, owned by the state. Her status is implicitly one of indentured servitude. Since the construction and the continued maintenance of her cybernetic body are costly and moreover beyond her own means, discontinuing her employment would mean "returning" those highly-expensive parts, not to mention her memories as "data," back to the government that claims them as its rightful property. The film suggests that her individual subjectivity and quality of life would be so diminished by such forfeitures that she is essentially trapped in a technologically-enabled and -constructed posthuman slavery. In *Innocence*, Oshii presents us with gynoids, or what are fundamentally sex-bots, who are explicitly property to be made, sold, traded, and so on, and whose value lies in their adolescent appearance and affect. In other words, Oshii arguably imagines what might be the extreme outcome of biopower in a posthuman world where human trafficking is aided and abetted by a globalized political economy and technological infrastructure. I am not contending that technology is inherently antithetical to human existence, but rather observing that Oshii depicts some of the dangers that should be addressed when we consider humanity's relationship with technology. In Oshii's highly technologized world, corporeality is contingent, commodified, and constantly under attack. In this regard, Michel Foucault's theory of biopower can help us consider how power operates in the literal construction, maintenance, and circulation of the cyborg, and the envisioned psycho-social ramifications of this, including the ways in which practices of power in/form the subjectivity or otherwise impact the subjectivation of the cyborg.

RECOGNIZING/(RE)DEFINING HUMAN TRAFFICKING

The audience first meets Major Kusanagi when she is tasked to assassinate an ambassador helping a defecting computer programmer. However, the focus of the film and Kusanagi's main mission are the identification and arrest of the Puppet Master, a villainous hacker who "ghost-hacks" the "cyber-brains" of various persons running the gamut of all walks of life from diplomatic trans-

lators to refuse collectors. After hacking them, the Puppet Master's victims are unable to remember their childhoods, personal histories, or dreams and life goals. In the course of solving the mystery and apprehending the Puppet Master, Kusanagi questions her identity as a cyborg, and challenges what it means to be human, especially in a world in which people, like computers, can be "hacked" and have their memories tampered with. Towards the end of the film, the Puppet Master downloads into a female cyborg shell also manufactured by the same corporation as Kusanagi's, and professes to be artificial intelligence who "became self-aware" from "wandering various networks" and requests asylum from Section 9. This shell is immediately stolen by Section 6 agents; but Kusanagi and her partner Batou recover the Puppet Master's cyborg body, and "she" confesses that "she" took a corporeal form in order to meet and merge with Kusanagi to transcend the limits of both of their existences. Ultimately, Kusanagi agrees; but both cyber-bodies are destroyed by Section 6 agents at the moment of their merger, leaving Batou to recover Kusanagi's "brain shell" and attempt to resuscitate her by implantation in a black-market cyborg body. She revives, and, after a brief conversation with Batou, departs, destination unknown, but with the understanding that, "The net is vast and limitless."

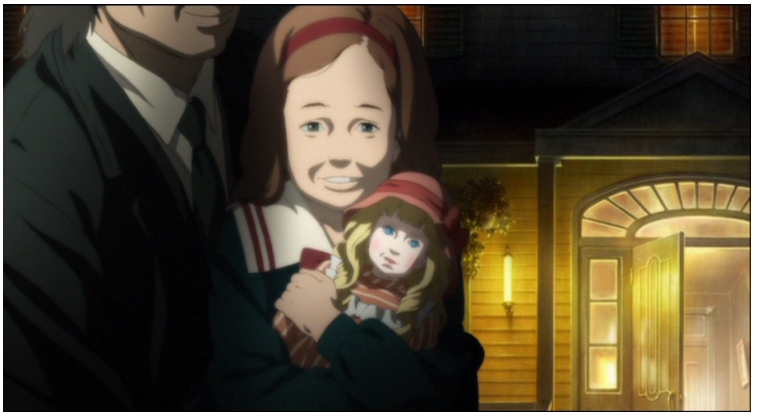
The second film *Innocence* commences with Batou and his partner Togusa arriving at a grisly crime scene. Batou follows a literal trail of blood to decapitated police officers and an adolescent-looking gynoid, naked under an untied red robe with an iris behind her ear, holding the head of one of the police officers in her lap. She attacks Batou, and, when he throws her back, she whispers, "Help me," as she rips open her own torso, in a cybernetic allusion to Hans Bellmer's *Rose ouverte la nuit* (*Rose open at night*, 1946).

Bellmer, Hans. *Rose Open At Night*, 1934. *WikiArt*. "Hans Bellmer: Famous Works," N.d. Web. 13 Jan. 2018. <https://www.wikiart.org/en/hans-bellmer/rose-open-at-night-1934>

Oshii adds his own twist by having panels of the gynoid's face also bursting open in a grotesque mirroring of her torso.

Thus begins Batou and Togusa's investigation into the malfunctioning, murderous Hadaly 2052 gynoids, manufactured by the multinational company Locus Solus.[4] Following the clues from the bloody killing of Jack Volkerson, consignment inspector for Locus Solus, Batou and Togusa question the local yakuza, leading to a messy shootout. Afterwards, Batou is given a cryptic message about being "in the kill zone" right before his e-brain is "hacked," causing him to shoot his own arm, nearly killing bystanders. Continuing with the case, Batou and Togusa seek out Kim, a disgraced ex-special forces operative, and at Kim's decrepit mansion of automatons, puppets, and tableaux vivant, Kusanagi makes a brief cameo in her borrowed cyborg body from the end of *Ghost in the Shell* to leave clues for Batou. Batou and

Togusa discover through Kim that Locus Solus is holding the kidnapped girls so that their "ghosts" can be copied onto the gynoids, presumably to make the gynoids more realistic and therefore valuable to customers. Batou infiltrates Locus Solus's floating manufacturing plant and faces the murderous gynoids. Just as they seem to overwhelm Batou, Kusanagi downloads into a gynoid body to help him. She confesses to be behind the cryptic warning about being "in the kill zone" when Batou was hacked. After shutting down the plant, they find and release one of the only still-conscious girls who explains that, with the help of a remorseful Volkerson, she tried to circumvent the three-laws programming of the gynoids in order to "make trouble" so that someone would notice and investigate.[5] The film concludes with Batou being reunited with his dog while Togusa gifts his young daughter, who had been dog-sitting, with a porcelain doll.



What is the connection between these two cyberpunk films and human trafficking? To begin with, it might be instructive to define human trafficking. According to the website for the United Nations Office on Drugs and Crime (UNODC), "Article 3, paragraph (a) of the Protocol to Prevent, Suppress and Punish Trafficking in Persons defines Trafficking in Persons as the recruitment, transportation, transfer, harbouring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving

or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation" ("What Is Human Trafficking?"). Exploitation as explained by the UNODC "include[s], at a minimum, the exploitation or the prostitution of others or other forms of sexual exploitation, forced labour or services, slavery or practices similar to slavery, servitude or the removal of organs" ("What Is Human Trafficking?").[6]

While Oshii's *Ghost in the Shell* duology does not purport to depict real or even allegorical representations of human trafficking, it nonetheless does imagine a posthuman future where technology and globalization create the structural conditions that propagate human trafficking in ways that disturbingly parallel the trends which Kathleen Kim and Grace Chang pinpoint in "Reconceptualizing Approaches to Human Trafficking: New Directions and Perspectives from the Field(s)." A report published by Human Rights First claims that, "An estimated 21 million victims are trapped in modern-day slavery" ("Human Trafficking by the Numbers"); however, as Kim and Chang observe, our attention is usually only focused one particular aspect of human trafficking, forced prostitution. In the first *Ghost in the Shell*, Kusanagi's situation of a legalized indentured servitude is not sexual slavery, but a broader mix of "forced labour or services" brought about by the exigencies of a global political economy, where even the defection of a computer programmer is criminalized as violating an arms export treaty. To counter the consequences of "[t]he advance of computerisation" that portends the extinction of "nations and ethnic groups" (as explained in the opening titles), cyborg agents like Kusanagi are required to maintain public security; their technologized bodies, however, leave them beholden to their employers. As mentioned earlier, Kusanagi's employment is voluntary up to a point; if she or any other cyborg agent discontinues working for Section 9, they must "give the government back [their] cyborg shells… and the memories they hold." Her body is not hers, but is instead literally government property.[7]

Innocence thus takes the implicit theme of human trafficking or forced servitude from *Ghost in the Shell* and makes it explicit through its use of gynoids. The gynoids themselves are a very obvious case of human trafficking, fitting into the dominant understanding of hu-

man trafficking as primarily "the prostitution of others." In solving the mystery of the murderous gynoids, Togusa and Batou find that a black market in kidnapping adolescent girls is what provides the infrastructure for creating these sex dolls in the first place, thus adding another layer to the film's representation of the trafficking of sentient beings, made obvious through the implications of sexual exploitation. The gynoids are *tabula rasa*, in contrast to Kusanagi whose cyborgization is meant as an extension of and/or complement to her already existing abilities. Yet, these differences arguably highlight the ways in which Oshii's posthuman future projects a political economy where cyborgs and technology are not only embedded in structures of power, but where the enslavement of female cyborgs also scaffolds this hegemony. These two films thus highlight and critique the biopolitics that constitute and enable such exploitation, and the films make visible the ways in which these anxieties about technology and the self, while allegorically imagined through cyborg and gynoid bodies, are becoming more and more salient with each technological breakthrough.

BIOPOWER AND CORPORATIZATION OF CYBORGS

In *Society Must Be Defended*, Foucault asserts that biopolitics is best explained through a tidal shift in the exertion of power by the state where, "The right of sovereignty [which] was the right to take life or let live" becomes "the right to make live and to let die" (241). Where the apotheosis of the monarchial state's power lies in the king's order or stay of execution, the contemporary state's ability to withhold or offer life-saving or life-extending measures and technologies illuminates the dark path that the intersection of the biotic and the technological may portend. As such, Foucault's biopower and biopolitics are particularly pertinent to discussing Oshii's vision of a posthuman world where technology is so ubiquitous that there seem to be almost no characters without some sort of modification and therefore dependence on the biopower of the state. This is not to say that the state no longer retains "the right to take life or let live" (as evidenced in capital punishment), but to highlight that a turn to biopolitics inaugurates a sweeping organizational and infrastructural change to the workings of the state. As Foucault notes, "I wouldn't

say exactly that sovereignty's old right—to take life or let live—was replaced, but it came to be complemented by a new right which does not erase the old right but which does penetrate it, permeate it" (241). Biopolitics, unlike the older politics from which it is differentiated, "deals with the population, with the population as political problem, as a problem that is at once scientific and political, as a biological problem and as power's problem" (245). Biopolitics is thus not merely about a shift in the organization and exertion of power, but about how that shift is itself inextricably linked to and embedded in different knowledges and structures. In *Innocence*, for example, even Togusa's daughter seems unable to escape the touch of biopolitics as made uncannily evident in her "innocent" joy in her gifted doll, which is now hers to own and control.[8]

The politicization of the *bio*logical, of *life*, is made very evident in Oshii's films, and Kusanagi's indentured servitude itself offers a very concrete example of biopolitics, since her life is only made possible through her continued employment at Section 9. Her particular circumstances also highlight the myriad social and political relationships necessary to give rise to such a situation. Oshii's *Ghost in the Shell* establishes Section 9, in contrast to Section 6 whose purview seems to be domestic matters, to be devoted to counter-terrorism, or securing the nation from external threats. It is unclear, however, whether technology is positioned on the side of counter-terrorism or against it. The opening explanatory titles assert that, "The advance of computerisation… has not yet wiped out nations and ethnic groups," implying the iconoclastic potential of technology. Section 9 therefore works to secure the continued existence of the nation as a nation, using the very technology that paradoxically portends the annihilation of the nation itself.

This paradox no doubt stems from anxieties resulting from a posthuman society that seems to draw ever nearer. Indeed, with the (increasing) interpenetration of the organic body with the technology by which different medical advances that have been realized, the cyborg has become a particularly contentious figure in both our cultural imaginaries and in fact. These very scientific advances themselves call into question not only the wholeness of the organic being, but also the status of the human. Donna Haraway's "Cyborg Mani-

festo" very famously ruminates on the cyborg's potential to blur and perhaps even dismantle ossified categories of race, gender, sexuality, and so on through its hybrid nature. In "Sex and the Single Cyborg: Japanese Popular Culture Experiments in Subjectivity," Sharalyn Orbaugh argues that,

> The cultural products that engage the notion of the cyborg help us to come to terms with the meaning of this new relationship between the human body and technology as that relationship unfolds: narrative helps us to work through the fears and desires of a particular historical-cultural moment. We are each of us already compelled daily to face the breakdown of the distinction between the mechanical/technological and the organic/biotic. Cyborg narratives allow us, in Jennifer Gonzalez's phrasing, to personify, condense, and displace the anxieties and hopes raised by this situation. (436)

Some of these anxieties and hopes are articulated by and through those living lives altered or enabled by technology as in the case of Neil Harbisson, "the world's first cyborg activist" implanted with an antenna connected to a sensor in his brain that "translates colour into sound" (Jeffries). While Harbisson's self-coined "eyeborg" was initially meant to "help him counter a rare form of colour blindness called achromatopsia," he had the device upgraded to be Bluetooth-enabled so that he "can either connect to devices that are near [him] or [he] can connect to the internet" (qtd. in Jeffries). Harbisson claims that such technological enhancements go beyond deciding to become a cyborg and are also "an artistic statement— I'm treating my own body and brain as a sculpture" (qtd. in Jeffries).

Yet, perhaps the most interesting and telling feature of Harbisson's account is precisely what it is missing. His narrative of his journey "on the superhighway to transhumanism," although it declaims artistic freedom, bodily autonomy, and cyborg rights, does not account for the way that race, gender, or even class might inflect cyborg experience (Jefferies).[9] There is, for example, a jarring contrast between his story and that of Vanilla Chamu, a Japanese woman who became briefly famous after appearing on a Japanese variety show in 2013 and who admitted to having undergone more than 30 elective surg-

eries and procedures "to look like a French doll" (Ashcraft). The television show, however, did not introduce her as "a living doll" as she desired, but as a "cyborg" (Ashcraft). The label implies "that she no longer looks totally human" (Ashcraft). The contrast between the two narratives, and who has control over them, is suggestive of Harbisson's privileged position, which allows him to disregard gender and race in ways that are denied to Vanilla Chamu. For him, becoming a cyborg gives him agency over his body and subjectivity in a way that Vanilla Chamu is pointedly denied. Her story is very blatantly shaped by constructions of race and gender, from a childhood of being bullied for being "busaiku," or "ugly," to spending more than $100,000 USD (Ashcraft) on various procedures to erase or rewrite that past trauma, and even her unwanted appellation as a cyborg. As a child, she was bullied and perhaps ostracized for failing to meet beauty norms set for women in Japanese society, but she also responds to this social rejection by revering porcelain French dolls. In some ways, this response also implies an internalized racial hegemony that privileges whiteness and white as beautiful (more beautiful than Japanese).

These real-life accounts of "cyborgs," as both embraced or externally imposed identifications, demonstrate a kind of schizophrenic polarization in cyborg experience. This polarization is reflected in Oshii's films where cyborgization is imagined both as allowing humans to surpass their original biological limits and as dehumanizing. There is admiration and, at the same time, disdain for the cyborg. Oshii's *Ghost in the Shell* films imagine the cyborg in contradictory, politically-charged ways, veering from a fixation on the super-human, gendered bodies of its female characters to a violent disregard for the same. This violent disregard arguably stems from the commodification of the cyborg. In "From Wooden Cyborgs to Celluloid Souls: Mechanical Bodies in Anime and Japanese Puppet Theater," Christopher Bolton points out that, "At the story level, the major [Kusanagi] is both a strong heroine who has become powerful by internalizing technology and *a technological object possessed by others*" (733, emphasis added). The first film, as Bolton points out, vacillates between a valorization of the technology that has enhanced her abilities, conveying a "message of bodily transcendence," and an apparent fixation

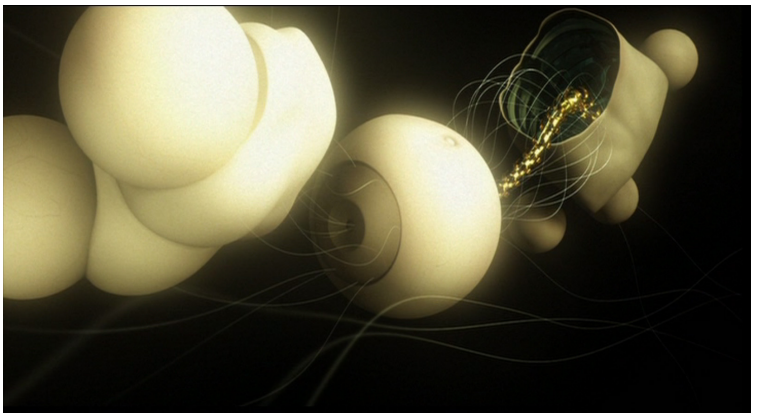
on female sexualization and the body (736)—hence the gratuitous nudity which is only superficially excused by the character's constant need to disrobe in order to make use of optical camouflage embedded in her skin. Kusanagi's cyborgization suggests that, "the gendered body is not transcended by technology but, rather, objectified and commodified to a greater degree" (Bolton 735). Where Bolton goes on to contextualize *Ghost in the Shell* within critical theories on puppetry and animation, I wish to concentrate instead on the issue of commodification. The films themselves centralize this commodification, making it fundamental to the structural underpinnings that inform the biopolitics of the cyborg.

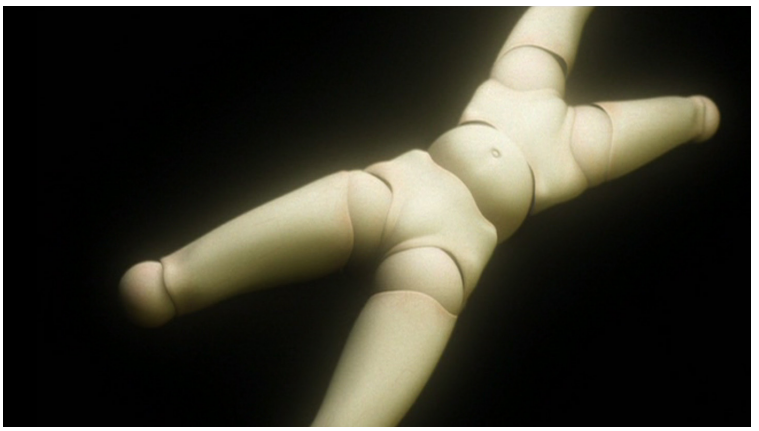
The two films highlight the construction of the cyborg (or gynoid), spending approximately five minutes showcasing the process in each movie, in ways that question the status of the cyborg in human society (and thus what it means to be human). Set to Kenji Kawai's now-iconic musical score "Making of a Cyborg," the opening titles present a filmic catalogue of Kusanagi's "shell."[10] The sequence begins *in media res* with a metal skeleton already wrapped in fibres mimicking muscles and tendons. The sequence calls attention to Kusanagi's "brain" with a montage of a limited-side, high-angle shot of a metal skull in several connected pieces with the "frontal bone" joining the rest of the skull, followed by a green-light rendered scan of a brain, and then finally a back-shot of the metal skull closing up, presumably with an organic brain inside.[11] The depictions of medical imaging of Kusanagi's body or body parts are usually followed by frames of her body in "real-time"—except for her brain. Besides leaving the question of Kusanagi's *a priori* biological self unanswered (is she fully artificial with false memories *à la* Ridley Scott's 1982 *Bladerunner*, or is her organic brain the only remaining component of her original biological self?), the catalogue also shows a complete lack of human involvement; every aspect is automated. Cybernetic technicians, doctors, and staff are only shown observing and taking notes during the "birthing" process.

The mechanization of birth not only dissociates cyborgs from humans in very literal ways, but also demonstrates the interpenetration of political economy and biology. In "All That Matters: Technoscience, Critical Theory, and Children's Fiction," Kerry Mallan de-

scribes "The 'birth' of the Major … as a result of computational numbers and codes" (157).[12] The mediated procedure highlights the predominance of mechanization and presumably computer technology, dissociating the cyborg from human society through its completely automated "birth." Moreover, as Sharalyn Orbaugh observes, a "feature of organic reproduction as we know it is the importance of place—the space of embodiment. One is born from a specific place, the body of the mother, into a specific place. This happens only once, in that time and that place" ("Sex and the Single Cyborg" 447). This singularity, however, does not hold for Kusanagi, who can always be reconstructed, "emerg[ing] time and again from the same process" (Orbaugh 447). An anxiety about replaceability and replication haunts the film and is especially evidenced in a sequence, set to Kawai's score "Reincarnation," in which Kusanagi, traveling by ferry along the canals of the city, meets the eyes of her doppelganger, visually and aurally implying that the other woman is also a cyborg.

After the bloody scene with decapitated police officers and a half-nude gynoid that opens *Innocence*, Batou and his temporary partner Togusa go to confer with the local police forensics specialist, Haraway (obviously named after the theorist and scholar Donna Haraway). In her macabre lab filled with dismembered, deactivated, and defunct gynoids hanging in yellow-tinted bags, Haraway explains that the Hadaly 2052 is "equipped with organs unnecessary in service robots," obviously "intended for particular functions"; that is to say, the particular model "is a sexaroid." Haraway's conclusion casts the making of the gynoid in an even ghastlier light than the one that haloed the making of Kusanagi's cyborg shell.[13] The gynoid, in contrast to Kusanagi's cyborg, does not mimic the musculoskeletal structure of a human body, but instead pays distinct homage to Hans Bellmer's Dolls. Visually, like Bellmer's "artificial girls," Oshii's gynoids are constructed from ball joints, wires, and tubing, reminiscent of puppetry and signaling a kind of uncomplicated (or less complicated than in Kusanagi's cyborg) construction that can be easily mass-produced and thus commodified. The anxiety about replaceability and replication in *Ghost in the Shell*, previously oblique, is made very blatant in *Innocence*.





La Poupée, Hans Bellmer, *International Center of Photography*, web, n.d., 10 Feb. 2018, https://www.icp.org/browse/archive/objects/la-poup%C3%A9e-5

Indeed, the visual allusions to Bellmer's works are not just about the uncanny and the potentially endless production of doppelgangers that the army of gynoids at the end of the film realizes, but also about the biopolitics at work in the creation of this eerie legion of gynoids. Livia Monnet's "Anatomy of Permutational Desire: Perversion in Hans Bellmer and Oshii Mamoru" provides an in-depth history and analysis of Bellmer's "artificial girls" made out of "two life-size mannequins" (Monnet 286). In her follow-up, "Anatomy of Permutation Desire, Part II: Bellmer's Dolls and Oshii's Gynoids," Monnet considers their influence on Oshii's film, and how the animated feature expands on Bellmer's ideas. Indeed, in one part of the

"birth" sequence, Oshii "includes the brief appearance of a variation of Bellmer's Torso Doll; the splitting of his Bellmerian prototype into two identical articulated dolls that float toward each other until their lips touch in a chaste kiss" ("Anatomy of Permutation Desire, Part II" 154). While Monnet analyzes this scene in terms of Bellmer's art and theory of desire and perversion, I wish to concentrate on how this Bellmerian homage is also about replication. It extends in macro what the construction catalogue begins in the micro: the gynoid forms from what seems to be cell division, but then visually morphs into mechanical and puppet-like structures. Unlike the cyborg of *Ghost in the Shell* with its intact and complete corporeal frame, this "birth" sequence starts with separated body parts. This is a body that can be easily deconstructed and whose parts are easily interchangeable. The title of Kawai's accompanying music for this "birth"—"The Ballade of Puppets: Flowers Grieve and Fall"—evokes the gynoid's lack of individuality and uniqueness as well as their temporal brevity.

The biopolitics of the gynoid in *Innocence* are about this pervasive system of commodification and corporatization of what are not typically considered commodities to be bought and sold. At the first debriefing about the case, Batou and Togusa are given the specifics about the Hadaly model, including that it was "developed for testing" and was "provided free of charge to contractors." It is unclear what kind of "testing" could have been involved; but the gynoid, as a "pet" model designed specifically to be able to have sexual intercourse, is itself a kind of currency, "gifted" to various personages, including politicians and "retired Public Safety official[s]," hence requiring Section 9's involvement as Chief Aramaki explains. The gynoids not only stand in for trafficked girls, but are themselves replications of trafficked girls, "ghost-dubbed" from those kidnapped and held hostage by corporations like Locus Solus. The film seems to suggest that while the biological girls are somewhat finite commodities, the gynoids can be infinitely produced even as their organic progenitors deteriorate from the "ghost-dubbing" process. There are also some dark implications that the gynoids are not only market commodities themselves, but also, like the Puppet Master program of *Ghost in the Shell*, might be collecting data for exploitation. In the final

scene of the birth of the gynoid, the view rotates around her upper torso, ending on a close-up of her left eye, which opens to reveal a cornea whose outer rim mimics that of a camera lens. Possession of a "sexaroid" like the Hadaly 2052 is, in the words of the forensic specialist Haraway, "Nothing to brag about to your neighbors but hardly illegal," though its manufacturing origins and possible use of it for surveillance and non-consensual recording definitely are illegal.

DIS/CORPORATIZATION OF CYBORG BODIES AND POSTHUMAN TRAUMA

In addition to their adroit imagining of the encroachment of biopower into society via the cyborg, Oshii's *Ghost in the Shell* films also quite deftly question subjectivation and subjectivity under such circumstances. What is "self" if brains can be transplanted, e-brains can be hacked, and people can be "ghost-dubbed"? The duology seems to dramatize a Cartesian mind-body duality that favors the metaphysical over the physical. Indeed, the disdain for the physical is literally violent in the films, as corporeal forms are torn limb from limb. Orbaugh's provocatively and pertinently titled essay "Who Does the Feeling When There's No Body There?" poses the fundamental question that haunts such dis/corporatization of humans and sentient beings.

While Orbaugh brings Donna Haraway's early writings on the cyborg to bear on Oshii's cyborg films and vice versa, she doesn't really answer the question in her title, and I would argue that this lack of answer is due to two interrelated issues: posthuman trauma and the limits of dis/embodiment. Orbaugh notes that *Innocence* was conceived in response to a question in an interview in which Oshii was asked, "If humans have no memory and no body, in what sense are they still human?" (204). For Oshii, if one is without memory and bodiless, what remains is *omoi*, which, as Orbaugh explains, "can be translated as thought, feeling/emotion, or even love, depending on the context" (204). Thus, the epigram from *L'Ève future* that starts *Innocence*—"If our gods and hopes are nothing but scientific phenomena, then it must be said that our love is scientific as well"—seems to gloss the film as indirectly celebrating the capacity for love as the

ultimate *raison d'ètre* for existence while never answering "who" or "what" is doing the loving; it is simply enough that love exists. This interpretation is suggested by Orbaugh's observation that Oshii's *Innocence*, like Haraway's theories about companion species, also explores the inter-subjective world between dogs and humans through Batou's love for and care of his pet basset hound. On one level, this love is very clearly "scientific" since, as Batou explains to Togusa and Ishikawa, his dog is a clone from the original (implying that the original may be deceased, or else suggesting, as was the case in Philip K. Dick's *Do Androids Dream of Electric Sheep?*, that owning "real," biological animals is a status symbol reserved for the rich and therefore beyond Batou's means). However, even these "innocent" loves between man and companion-animal are clearly fused with biopolitics, and thus challenge such an "innocent" exegesis.

A large part of the "dark" narratives that belie a simple valorization of love as the defining aspect of being human is the trauma that haunts the films. Posthuman trauma is invoked right from the start of the first film. When Kusanagi first appears on-screen, she is covered in a dark trench coat with sunglasses covering half her face, even though it is nighttime. There are competing streams of sounds that simulate multiple radio channels playing at once as she tries to hack or electronically eavesdrop on her targets, only to be interrupted by her colleague's calling her name. She facetiously dismisses his questioning of the "static" in her brain with the comment, "It's that time of the month" (even though as a cyborg, she cannot reproduce biologically). While seemingly humorous, her dead-pan delivery, combined with the viewer's later knowledge of her cyborg status, make the dialogue more morbid than lighthearted. I think that beyond being darkly humorous, this moment and others indicate a kind of body dysmorphia.

A sense of disconnection from her own corporeality plagues Kusanagi throughout the film, from the moment when she "wakes up" in her apartment after the "making of a cyborg" sequence all the way through to Batou's resurrection of her in a jarringly adolescent cyborg shell at the end of the film.[14] After interviewing the hacked garbage man, Kusanagi muses to Batou about what makes up an individual: "A face to distinguish yourself from others. A voice you aren't

aware of yourself. The hand you see when you awaken. The memories of childhood, the feelings for the future." The visual narrative of the film makes clear that these are elements that can be falsified or copied ad infinitum, from Kusanagi's own face which she sees replicated on her doppelganger to her voice that can be "reprogrammed" to her hand that is mass-produced by a cyborg construction company (not to mention, memories that can be hacked and changed).

Kusanagi is clearly at odds with her own corporeal existence. Her apathy towards her cyborg body is reflected in her indifference to her own nudity and her deep-sea diving hobby which could end in her death if the floaters that counter the weight of her heavy cyborg body fail. Her body dysmorphia is most pronounced when she forces her own bodily destruction attacking the tank that protects the shell of the Puppet Master, which was requisitioned by Section 6 to prevent Section 9 from discovering that this artificial intelligence was initially and illegally created as an espionage program. The film grotesquely highlights the ruptures of muscles, tendons, joints, and even bone as she futilely wrenches away at the top hatch of the tank, literally tearing apart her arms and legs as the force exceeds her own bodily capacity: "As Kusanagi struggles with a tanklike [sic] armored juggernaut, her artificial muscles bulge and swell until she assumes Arnold Schwarzenegger-like proportions, finally exerting such enormous forces that she literally pulls herself apart" (Bolton 733). As Bolton observes, "Portrayed in studied slow motion and accompanied by Kawai Kenji's eerily low-key score, the major's final dismemberment has a violent but curiously affectless quality that highlights her disregard for the physical form" (733). He argues that this disregard for her body aligns with her desire to be free from Section 9: "Kusanagi's body is destroyed and only her brain remains intact, [this is] an outcome that frees her from that body and from Section Nine" (734). Moreover, her merging with the Puppet Master allows her "to transcend the body" so that "she nearly escapes embodiment altogether" (735). I agree that the film's narrative trajectory supports this analysis, but it obscures the implicit posthuman trauma of which her lack of affect is a symptom.

This posthuman trauma in Oshii's *Ghost in the Shell* films brings together the increasing atomization of the body (and its commodifi-

cation) and subsequent psycho-social effects. The medicalization of the body, as Foucault cogently argues, is not only linked to the rise of disciplinarity (i.e. the rise of the sciences as disciplines producing what he calls a "medico-sexual regime"), but also disciplinary power in general—in other words, biopower (Foucault, *The History of Sexuality* 42). As Lesley Sharp notes in "The Commodification of the Body and Its Parts," "scientific forms of knowledge currently fragment the body with increasing regularity" with the material effect of "a proliferation in the marketability of human body parts… [and] the ever increasing atomization of the medicalized body" (289). Oshii's films literalize this fragmentation, highlighting the ways the market challenges an "assumed human desire to protect personal boundaries and guard body integrity" (Sharp 287).

There are no real-life analogues that could capture the degree to which Kasunagi experiences the attendant trauma of collapsing boundaries and bodily integrity brought about by her cyborgization. The closest procedure would be a head transplant, such as Valery Spiridonov volunteered to undergo. Spiridonov suffers from "Werdnig-Hoffmann disease, a genetic disorder that wastes away muscles and kills motor neurons—nerve cells in the brain and spinal cord that help move the body" (Kean). While "many scientists and ethicists have slammed the project, accusing the surgeons involved of promoting junk science and raising false hopes," Sam Kean notes, "The past few decades have been a golden age of transplant medicine" with "[n]ew surgical techniques [making] reattaching delicate structures easier, and powerful new drugs … all but eliminate[ing] the threat of rejection" (Kean). However, beyond the excruciating costs (estimated anywhere from $10 million to $100 million) and intensive labour (approximately 80 surgeons are involved), there are more intangible costs. Anecdotally, Teri L. Blauersouth, LPCC, discussed with me stories of patients with heart valve implants complaining about feeling emotionally blunted or numbed by the simple fact of the heart valve regulating their cardiac rhythm to the point that their hearts literally no longer raced when excited, nervous, fearful, and so on. Such anecdotal accounts highlight the intangible costs of such procedures for something certainly less intensive and encompassing than a head transplant.

Perhaps the closest frameworks for attempting to understand the possible trauma from becoming a full-body cyborg are from psychological research on body concept and image.[15] In "Mental Representation of the Body: Stability and Change in Response to Illness and Disability," John D. Mayer and Myron G. Eisenberg discuss not only how body concept and body esteem may be involved in "central aspects of the self-concept," but also how such aspects may influence a person's health and vice versa (155). For instance, illness may lead to lower body esteem and therefore may damage one's body concept. Under these circumstances, illness may cause negative self- and body-concepts. In a related scenario, if a person has negative self- and body-concepts, then such views may depress the immune system and cause or otherwise exacerbate suboptimal health conditions.

It is clear that Kusanagi does not have a positive body concept and esteem, as evidenced by her complete disregard for her cyborg self, from her disregard of her own nudity (which cannot be cultural as Batou invariably turns away from her nude body in embarrassment or tries to cover her with his jacket) to her own consciously self-destructive actions. Orbaugh agrees that "Kusanagi's lack of shame is not depicted as a moral issue" because "Kusanagi in a sense stands for the inauthenticity of the body/shell, and it is therefore not surprising that she exhibits no affective connection with it or through it" ("Emotional Infectivity: Cyborg Affect and the Limits of the Human" 162). Part of Kusanagi's negative body concept no doubt stems from the commodification of her corporeality as Bolton argues; but traumatization from such extensive bodily modification cannot be denied even as it is rarely directly referenced or addressed in the film.

In the case of the gynoids and kidnapped girls of *Innocence*, the trauma is both more straightforward and yet oddly absent from the narrative. Being abducted and held in what are metal cocoons are obviously traumatizing experiences, and the effective catatonia of the majority of the girls can be seen as traumatic responses to their captivity and confinement beyond the supposed degradation caused by "ghost dubbing." (It is unclear whether the degradation is physical, mental, or a combination of the two, only that as Kusanagi explains, "In past animal experiments, scientists mass replicated interior copies but had to abandon the practice as it destroyed the original being.") The girls'

trauma is indicated through their physical confinement, eerie silence, and lack of responsiveness. The rows of cocooned girls, with only their unmoving faces and closed eyes visible through a small portal in each metal coffin, present an uncanny visualization of their trauma and reiterate anxieties about replication and replaceability previously raised in *Ghost in the Shell*. In this instance, the girls' faces appear identical and their non-responsiveness further suggests a lack of individuality. They, like their gynoid counterparts, are an army of identical bodies, made by their dis/corporatization. Where the cyberization process in *Ghost in the Shell* highlights the mechanical and technological replication of (cyborg) bodies, here the "ghost dubbing" of *Innocence* dramatizes the traumatic duplication of (biotic?) subjectivities.

However, the film does not fully explore the traumatic connection between the kidnapped girls and the gynoids. Firstly, the trauma experienced by the gynoids is completely off-screen, implied only by the near-nudity of the murderous gynoid that Batou shoots at the start of *Innocence* and the forensic investigator Haraway's explanation of "extra parts" that pet- or work-model robots would not have. The police procedural film only uncovers and explicates that the girls are abducted to be "ghost-dubbed" and that, "It was the ghosts that made Locus Solus gynoids so desirable" to their clients. But what does it mean that the gynoid is "ghost-dubbed" (or "realistically" copied) from an adolescent girl? There are some very dark implications that the clients do not value the gynoids merely for their girlish appearances, but also for their girlish reactions, which would involve traumatic responses since unwanted sexual contact would inevitably be traumatizing. Thus, the fragmentation of the body that is arguably at the root of Kusanagi's traumatic body dysmorphia in *Ghost in the Shell* is extended in *Innocence*'s posthuman world to the "ghost" or subjectivity that was seemingly reified at the expense of corporeality in *Ghost in the Shell*. This is demonstrated by Batou's harsh rebuke of one rescued girl that she and Volkerson didn't "consider the victims"—"Not the humans," but "the dolls endowed with souls." In this light, the gynoid's murderous rampage is not just about "making trouble" so that the kidnapped girls can be eventually rescued, but also a traumatic response to sexual slavery.

POSTHUMAN WARFARE

In *Society Must Be Defended*, Foucault asserts that, inverting Clausewitz's proposition, "Power is war, the continuation of war by other means" (15). Power is inevitably and inherently war-like since "power is not primarily the perpetuation and renewal of economic relations, but that it is primarily, in itself, a relationship of force" (15). Oshii's *Ghost in the Shell* duology dramatizes the inherently combative disposition of power, made very obvious in the biopolitics of Kusanagi's indentured servitude to Section 9 and in the construction and circulation of the gynoids. The explanatory titles at the start of *Ghost in the Shell* inadvertently reveal a great deal about power's historically inimical nature even while ostensibly gesturing towards the possibility of equality: "In the near future corporate networks reach out to the stars, electrons and light flow throughout the universe," suggesting a transcendence of a merely human individuality, but for the time being"the advance of computerisation…has not yet wiped out nations and ethnic groups." On one hand, "wiping out nations and ethnic groups" is a nod to the, at the time, growing association of electronic frontiers and freedoms with computerization as dramatized in films like *Hackers* (1995). In *Hackers*, one hacker's manifesto proclaims, "We [hackers] exist without nationality, skin color, or religious bias" in this "world of the electron and the switch, the beauty of the baud." Together, the two films, which premiered a few months apart, demonstrate the increasing correlation of digital boundlessness and liberation with computer technology in popular culture. However, on the other hand, these opening titles for *Ghost in the Shell* are also imbued with great violence since "wiping out nations and ethnic groups" has been historically accomplished through colonialism and military warfare; it has never been benign or uplifting, despite colonial logics and rhetoric. And indeed Kusanagi's indentured status can be construed as ultimately embodying a kind of neo-imperial logic of securing the nation with technological advances and computer coding rather than relying solely on physical force.

In this manner, Oshii's film duology imagines and stages the ways in which war is further internalized within civil society, even apart from the state centralization of the authority to wage war. As Foucault

notes in *Society Must Be Defended*, "The State acquired a monopoly on war"—"with the growth and development of States throughout the Middle Ages and up to the threshold of the modern era"—so that "it gradually transpired that in both de facto and de jure terms, only State powers could wage wars and manipulate the instruments of war" (48). He argues that, "The immediate effect of this State monopoly was that what might be called day-to day warfare, and what was actually called 'private warfare,' was eradicated from the social body, and from relations among men and relations among groups" (48). In the *Ghost in the Shell* films, biopower is not about presenting a shift from extraterritorial conflicts to interior ones, or the substitution of one for the other, but rather about how power can permeate society so wholly as to be exerted upon an individual at the atomic level through the dis/corporatization of the body. Even while "private warfare" or the ability of feudal classes to make war became a state monopoly, war itself did not disappear from society, but instead became disturbingly more diffuse and ubiquitous. The cyborg entities of Oshii's duology are "instruments of war".

However, the ways in which Oshii's cyborg is an "instrument of war" in *Innocence* is particularly disturbing, uncannily demonstrating the diffusion of biopower into every level of this posthuman society. When Batou infiltrates Locus Solus's gynoid-manufacturing plant, deliberately situated in international waters in order to obfuscate jurisdictional authority, he is met with the onsite managers, themselves non-humanoid androids demarcated by archaic Chinese numbering, releasing the unsold gynoids as a literal army. These autonomous sex dolls are not reprogrammed with attack protocols; rather martial programming is already embedded in them, which, in retrospect, helps explain the murders at the start of the film that precipitated Batou and Togusa's involvement in the case. During the forensic investigation at the beginning of *Innocence*, Haraway found that "these gynoids are capable of self-authorizing attacks against humans" because of a nullification of "Moral Code #3," which constrains robots to "[m]aintain existence without injuring humans" (an intertextual reference to Isaac Asiminov's Three Laws of Robotics). Thus, the gynoid's attack off-screen of the policemen and her on-screen attack of Batou are not wild flailing, but very clearly expressive of combat

knowledge. In this way, the gynoid, as an embodiment of biopower, also reveals how we can, as Foucault argues, "understand power by looking at its extremities, at its outer limits at the point where it becomes capillary" (*Society Must Be Defended* 27). The gynoid, as an artifact of human ingenuity and creativity, is modeled, as Haraway complains to Togusa, "on a human image, an idealized one at that." Kusanagi, however, remarks, "If the dolls could speak, no doubt they'd scream, 'I didn't want to become human.'" This replication of humanity in a non-human construct is not just about the vanity and egotism of human engineers, but about how biopower circulates between the nonhuman and the posthuman. Even as the trafficked girl screamed that she "didn't want to become a doll" in response to Batou's scolding, Oshii's two films actually dramatize how dis/corporatization envelopes the human and the human-looking, how the posthuman is uncannily more and more embodying the logics of commodification.

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NOTES

1. This casting choice elicited accusations of white-washing since the protagonist of *Ghost in the Shell* is named Motoko Kusanagi, a name that is explicitly ethnically Japanese, while Scarlett Johansson is patently not of Japanese descent or of any Asian background. However, this paper,

while referencing the live-action version, focuses on Mamoru Oshii's full-length animation films; an article analyzing issues of race in the live-action film starring Scarlett Johansson will be reserved for future publication.

2. Kusanagi and Batou have this conversation while aboard a boat in what looks like the bay of Hong Kong. In "On the Edge of Spaces: *Blade Runner*, *Ghost in the Shell* and Hong Kong's Cityscape," Wong Kin Yuen analyzes Oshii's curious choice of a Hong Kong-esque backdrop for his film. There is a fascinating kind of reverse-Orientalism where the Japanese director looks towards Western cyberpunk films like *Bladerunner*, which use Asian bodies, symbols, and paraphernalia to demarcate a dystopian future. In "Stunning Shots of the Real-Life Hong Kong Locations Featured in *Ghost in the Shell*," Charlie Jane Anders documents the real-life scenes from Hong Kong that are adapted into *Ghost in the Shell* with juxtaposed photographs and film stills. In this reverse—or internalized—Orientalism, the animated stylings drawn from real-life Hong Kong are used also to signal a future, not necessarily dystopic, full of currently-imagined technologies and engineering while the preponderance of Japanese terms, naming, and other cultural cues indicate a conflation or perhaps flattening of all things Asian leading some critics to consider the film to be set in some future Japan.
3. For instance, in terms of the usurpation of biological reproduction (Sharalyn Orbaugh's "Sex and the Single Cyborg: Japanese Popular Culture Experiments in Subjectivity" and Kerry Mallan's "All That Matters: Technoscience, Critical Theory, and Children's Fiction"), the representation of externalized memory (William Gardner's "The Cyber Sublime and the Virtual Mirror: Information and Media in the Works of Oshii Mamoru and Kon Satoshi"), the gendering of the female cyborg (Jane Chi Hyun Park's "Stylistic Crossings: Cyberpunk Impulses in Anime"), and even cityscapes in cyberpunk films (Wong Kin Yuen's "On the Edge of Spaces: *Blade Runner*, *Ghost in the Shell* and Hong Kong's Cityscape"), to name just a few.
4. Hadaly is the name of the android created by a fictionalized Thomas Edison in Auguste Villiers de l'Isle-Adam's 1886 novel *L'Ève future (Tomorrow's Eve)*. *Oshii's Innocence begins with an epigraph from the same novel: "If our gods and our hopes are nothing but scientific phenomena, then it must be said that our love is scientific as well."* The company name is a reference to the 1914 science-fiction novel of the same name by French writer Ray-

mond Roussel.

5. Here, the "three laws of robotics" is a direct allusion to Isaac Asimov's rules, first introduced in his short story "Runaround" (1942), later anthologized in *I, Robot* (1950). These three laws prohibit robots from injuring a human through either action or inaction, compel the obedience of robots to any orders given by a human as long as these orders do not contradict the first law, and lastly oblige robots to protect their own existences insofar as this protection does not come into conflict with the other laws (Asimov).
6. However, this definition which centers sexual slavery as definitive of human trafficking actually obscures the quantitative evidence. In contrast to governmental and political conflations of human trafficking with forced prostitution, "a recent study by the Coalition to Abolish Slavery and Trafficking reports that clients trafficked to Los Angeles are subject to exploitation in many fields, including domestic work (40 percent), factory work (17 percent), sex work (17 percent), restaurant work (13 percent), and servile marriage (13 percent)" (Kim and Chang 5). While exact numbers cannot really be determined, these estimates do demonstrate that human trafficking skews towards forced labor situations that do not largely involve sex. Kim and Chang argue for a new conceptualization of human trafficking as "grounded in understandings of the processes of globalization, and the coercive nature of most migration within this context" in order to "[view] trafficking as coerced migration or exploitation of migrant workers for all forms of labor, including a broad spectrum of work often performed by migrants, such as manufacturing, agriculture, construction, service work, servile marriage and sex work" (6). This different framework highlights "coercion created by the destruction of subsistence economies and social service states through neoliberal policies imposed on indebted sending countries by wealthy creditor nations" (6).
7. This thread of posthuman slavery or indentured servitude is taken up explicitly in the *Ghost in the Shell: Arise* series, an original video animation and television series that reimagine Shirow's manga. In it, Kusanagi is explicitly bound to the 501 Organization which is the legal owner of her prosthetic body and so her services are at the agency's disposal in exchange for her corporeality. However, for the purposes of this paper, I wish to concentrate on Oshii's vision of a posthuman future in his own reimaginings of Shirow's world.

8. This ending scene is made ghastly and emptied of "innocence" in light of the argument that Togusa had earlier in the film with forensic pathologist Haraway about the nature of doll play in child development and psychology. Some of the implications will be discussed in more detail below.
9. While the dictionary definition for "transhumanism" is "the belief or theory that the human race can evolve beyond its current physical and mental limitations, especially by means of science and technology," there aren't clear delineations between posthumanism and transhumanism (Google.com). It seems that transhumanism might be considered a subset of posthumanism.
10. In "Cyborg Songs for an Existential Crisis," Sarah Penicka-Smith explains that Kawai's musical theme for the film "is a Japanese wedding song for purging evil influences before marriage" in an ancient form of Japanese ritual (234-35). However, the final line of the lyrics—"The distant god may give us the precious blessing"—is not sung until the third occurrence of the musical theme at the end of the film (Pneicka-Smith 235). Its absence in the opening credits thus frames Kusanagi's existential crisis about spirit and form, her anxiety that if her corporeality is synthetic so too might be her sense of sentience.
11. As Kerry Mallan notes in "All That Matters: Technoscience, Critical Theory, and Children's Fiction," "These instances offer hyperbolic accounts of how the body is made and unmade. This making/unmaking corresponds to medical technologies and procedures such as the percutaneous nephroscope, which allows doctors to blast kidney stones to smithereens with a bombardment of sounds waves" (161). The scans themselves seem to reference both existing medical technologies as well as computerized imaging used mostly in graphic and visual arts. As with my contention that the film represents and refracts existing psychological concepts of body, self, and trauma, it also represents and refracts existing visual references from medical, artistic, and computer frameworks.
12. Here, I think Mallan mistakes binary coding that dynamically introduces the title credits with the visual narrative of Kusanagi's cyborg "birth".
13. In *Innocence*, the construction of the gynoid is set to Kawai's "The Ballade of Puppets: Flowers Grieve and Fall." Penicka-Smith cogently explicates how Kawai's musical composition helps Oshii reverse Koestler's assertion that "machines cannot become like men, but men can become like machines" to how "machines do become like women" (237). As she observes, "from its first note, Kawai binds his new theme to the renegade

gynoids, those human machines which are Oshii's response to Koestler," where "the voices start alone, sounding tentative and uncertain," and "[t]he music is more melancholy, reflecting the gynoid's status as a slave rather than an independent woman" (238). She argues that the birth sequence alludes to the doll festival Hinamatsuri, where "families pray for the happiness and prosperity of their daughters and to ensure they grow up healthy and beautiful," ironizing the trafficking of young girls discovered by Batou and Togusa (239).

14. It is unclear whether she even needs to sleep as a cyborg, but the scene also casts doubt upon her prosthetic life and her subjectivity as a cyborg. Is the "making" of her prosthetic self an external flashback, a memory, or a dream? I think that the film's narrative structure tends to point to an external flashback, where the sequence functions as diegetic analepsis, but arguments can also be made for the latter two possibilities. In the Japanese language version, when she initially awakens in her new cyborg shell, Kusanagi speaks with a disturbingly high, young-sounding voice. Her voice later and abruptly changes to her lower, more adult register, signaling aurally that she has adapted to or taken control of this new body. The disjunction between the vocal registers establishes a sense that this is not her body, that it really is just a shell.

15. Early psychological studies, such as Seymour Fisher's "A Further Appraisal of the Body Boundary Concept," used the term "body image" "to designate the attitudinal framework which defines the individual's long-term concept of his body and also influences his perception of it" (62). Body image is necessarily related to body boundaries; but, as Fisher points out, "there is variation in how definite or firm one perceives one's body boundaries to be" (62). The early testing of body image and body boundaries relied on subjects' descriptions of inkblot images, methods which have since been discredited.