Technology and the Fleshly Interface in Forster's "The Machine Stops": An Ecocritical Appraisal of a One-Hundred Year Old Future

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Abstract

As a prescient critique of telepresence technologies like the Internet, "The Machine Stops" satirizes hypermediated contact and in its place valorizes contact made with the fleshly body—so much so, that it fantasizes the removal of all technological mediations between that body and the "real." This move carries strong ecocritical implications in its suggestion that all authentic connection—whether between people themselves or between people and the earth—must be corporeal. The narrator's apology on behalf of "beautiful naked man" (122) and his nostalgia for the robust, technology-free body are, however, both problematic. Forster appears to conflate nakedness and fleshly connection with unmediated contact or "full presence," a view that raises many potential criticisms and questions. If the body proves to be but one kind of mediating interface itself, then on what grounds should the mode of fleshly connection be privileged over interactions mediated by motors, buttons, and video screens? If all contact must be mediated somehow, does it even make sense to consider one type of interface as "more authentic" than another? Is it right to equate nakedness with freedom from technology? In this paper I use an ecocritical perspective to explore such questions in the text, focusing in particular on Forster's depiction of technology as devastating to both the human body and to the experience of space and place. The timeliness of such concerns suggests that "The Machine Stops" might prove even more significant in the hypermediated world of today than it was a hundred years ago for questioning the relationship between corporeality, representation, and nature.

[Vashti] could see the image of her son, who lived on the other side of the earth, and he could see her.

"[…] I want you to come and see me" [he said]

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"But I can see you!" she exclaimed. "What more do you want?"

"I want to see you not through the Machine," said Kuno, "I want to speak to you not through the wearisome Machine […] I see something like you in this plate, but I do not see you. I hear something like you through this telephone, but I do not hear you […] Pay me a visit, so that we can meet face to face…" (Forster 92)

Introduction[1]

"Only connect," that famous wistful imperative from E.M. Forster's novel *Howards End* (1910), embodied a characteristically modernist nostalgia for presence, a yearning to escape the alienating machinations of society in order to make contact once again with the "real." In the novel, Forster represented "connecting" largely in terms of social ties, and in particular, through the attempt to establish intimate (and forbidden) relations between rigidly demarcated social classes. One year before that—almost exactly one hundred years ago—Forster published the short story "The Machine Stops," a futuristic fable in which he represented the conflict between two rival modes of "connection" available to the modern subject: the first mode being that of machinery and tele-technology, the second being gross bodily connection through the flesh.[2] By viscerally demonstrating the horrors that he imagined would ensue if humans relinquished physical contact in favor of machine-mediated connection, Forster helped inaugurate the genre of 20th century dystopian science fiction from which such novels as *We*, *Brave New World*, and *1984* have descended.

In "The Machine Stops," Forster depicted technology and rationality as joint agents of dissociation, dual threats severing us from nature and from our embodied human integrity. In this respect, Forster was of course extending a British pastoral tradition that lamented lost contact with an earth now assailed by rails, industry, and commerce, a shire-turned-wasteland that Gerard Manley Hopkins had eulogized in the prior century as "seared with trade; bleared, smeared with toil," where "the soil / Is bare now, nor can foot feel, being shod." But Forster's "rage against the machine" in "The Machine Stops" does more than just reprise the zeal for pre-industrial handicraft and cottage industry expounded by Victorians like John Ruskin and William Morris. Echoing the wistfulness for connection found in Forster's other work, as well as anticipating the primitivist, anti-industrial themes pervading D.H. Lawrence's novels, Forster's fable embodies specifically modernist anxieties regarding the role of intuition versus rationality, sensation versus ideas, and the fleshly interface versus telecommunication.[3] The story is also distinctively modernist in its quirky attunement to the alienation of a technologically mediated subject so completely divorced from nature that it doesn't even realize that it is alienated anymore.

To represent the dire consequences of extreme technological mediation, Forster extrapolates forward from the art and science of 1909 to envision life in a future so rationalized and mechanically mediated that nature and corporeality have been completely abjected from human awareness. Then he asks us to imagine the commingled terror and delight that emerge when "the Machine stops"—when the plug, as it were, is pulled—with the result that "getting in touch" is made painfully literal once again because technology no longer intervenes in human interactions with nature and with one another. Forster conceived his tale of machine-mediated dystopia as a critique of two specific cultural movements that had been prominent in his own day: the first, aestheticism and its keenness to experience the world wholly through the

mediation of art, and second, the techno-utopian optimism of writers like Edward Bellamy and especially H.G. Wells. But Forster's story is all the more important because it succeeds equally in anticipating 21st-century concerns, especially the hazards of contemporary cyberculture.

As a prescient critique of telepresence technologies like the Internet, "The Machine Stops" satirizes hypermediated contact and in its place valorizes contact made with the fleshly body—so much so, that it fantasizes the removal of all technological mediations between that body and the "real." This move carries strong ecocritical implications in its suggestion that all authentic connection—whether between people themselves or between people and the earth—must be corporeal.[4] The narrator's apology on behalf of "beautiful naked man" (122) and his nostalgia for the robust, technology-free body are, however, both problematic. Forster appears to conflate nakedness and fleshly connection with unmediated contact or "full presence," a view that raises many potential criticisms and questions. If the body proves to be but one kind of mediating interface itself, then on what grounds should the mode of fleshly connection be privileged over interactions mediated by motors, buttons, and video screens? If all contact must be mediated somehow, does it even make sense to consider one type of interface as "more authentic" than another? Is it right to equate nakedness with freedom from technology? In this paper I use an ecocritical perspective to explore such questions in the text, focusing in particular on Forster's depiction of technology as devastating to both the human body and to the experience of space and place. The timeliness of such concerns suggests that "The Machine Stops" might prove even more significant in the hypermediated world of today than it was a hundred years ago for questioning the relationship between corporeality, representation, and nature.

Where the Human Stops: Forster's Mechanically-Interfaced Body

Forster begins "The Machine Stops" by inviting the reader to envision a future world consisting entirely of mediation and man-made enclosure:

> Imagine, if you can, a small room, hexagonal in shape like the cell of a bee. It is lighted neither by window nor by lamp, yet it is filled with a soft radiance. There are no apertures for ventilation, yet the air is fresh. There are no musical instruments, and yet, at the moment that my meditation opens, this room is throbbing with melodious sounds. An arm-chair is in the centre, by its side a reading desk—that is all the furniture. (91)

Seated in the mechanized arm-chair is Vashti, a diminutive woman who dwells in this hive-like enclosure physically isolated and surrounded by levers, buttons, and tubes. Vashti interacts with her world entirely by way of mechanized mediation: her automated chair rolls obediently however she directs it (on the rare occasions she has to move through physical space, that is) and her relations with other people are mediated wholly by visual images and electrical sounds. The narrator's description of Vashti's body, seated in her arm-chair and reading by artificial light, suggests that such extreme mediation, however, extends her sense of self only at an exorbitant cost to her body: she is described as a "swaddled lump of flesh" (90). Forster's narrator marks this othered body with a nod to Jonathan Swift's satiric literalization of the figurative: Vashti's immature and undeveloped body is not merely clothed but in fact "swaddled" just like an infant's would be. As a mere "lump" her body suggests an uninhabited mass of vegetative material as opposed to a muscularly integrated corporeality, and through a lifetime of dwelling in a subterranean realm unlit by the sun, Vashti's white countenance has become like other pale

things under the earth, "like a fungus" (91), a term that suggests not only pallor but also vegetative inertness and, importantly, decay. (The suggestive connection between Vashti's feeble body and Decadence with a capital "D"—like H.G. Wells' effete Eloi in *The Time Machine*— is no accident, as we shall see.)

In the same way that Forster parodically literalizes the figurative here, he also exposes the figurative nature of what modern society unreflectively calls "being in touch."[5] Vashti un-ironically considers herself in close contact with "several thousand people"—even though her physical isolation means that she has never seen a single one of them in the flesh, and doesn't want to. For her, the visual and auditory images provided by the Machine—a striking analogue for "being connected" in contemporary cyberculture—not only make physical interaction passé, but also stigmatize and make obsolete first-hand sensation generally. As one of the most advanced lecturers had admonished remotely through the video-screen,

> "Beware of first-hand ideas! […] First-hand ideas do not really exist […] Let your ideas be second-hand, and if possible, tenth-hand, for then they will be far-removed from that disturbing element—direct observation. Do not learn anything about this subject of mine—the French Revolution. Learn instead what I think that Enicharmon thought Urizen thought Gutch thought Ho-Yung thought Chi-Bo-Sing thought Lafcadio Hearn thought Carlyle thought Mirabeau said about the French Revolution." (114)

In stringing out this lengthy chain of mediated mediations Forster's narrator lands a satiric jab at the mediations performed by the academy as well, while also (it would seem) anticipating the bracketing of the referent in structuralism and the endless deferral of signification in poststructural theory. Representing mediation in such a hyperbolically parodic vein strongly suggests that, for the narrator, something does in fact qualify as "direct observation" in contrast to these mediated modes of access, namely (as we find out later in the story), the immediacy of fleshly contact.

Early in the story, Vashti's armchair-bound, *nth*-hand philosophizing finds itself interrupted by a Machine-mediated video call from her physically remote son Kuno (see the passage quoted at the beginning of this paper). For Kuno, telepresence simply isn't "present enough"; machine-mediated images offer only an inauthentic simulation of an original, making a person lose too much in translation. Kuno is, like Tennyson's mirror-gazing Lady of Shalott or Oscar Wilde's disillusioned Sibyl in *The Picture of Dorian Gray*, "sick of shadows"—and yearns instead to experience contact with the real without an image as a go-between. For him, Forster's desire to "only connect" must be attained directly through his own body, for without corporeal contact, the "imponderable bloom" of physical presence is lost. As the narrator explains,

> The imponderable bloom, declared by a discredited philosophy to be the actual essence of intercourse, was […] ignored by the Machine, just as the imponderable bloom of the grape was ignored by the manufacturers of artificial fruit. Something "good enough" had long since been accepted by our race. (93)

Kuno nonetheless persuades Vashti to travel by airship and come see him half a world away. The voyage is traumatizing for her first because it requires that she physically "locomote" and actually *walk* from the elevator to her cabin on the ship, and second because she is forced to

abandon her subterranean hive-womb and face the first-hand reality of the earth's surface. (The extremity of her agoraphobic horror had been made all the more apparent when she first gazed down the tunnel leading away from her room. Though still underground, she is nonetheless "seized with the terrors of direct experience" and retreats to the womb-like security of her cell and all its umbilically-mediated connections to the outer world [97]). For Vashti, the surface of the earth is a harsh, dead world. The citizens of her Machine-society are permitted to travel to its brown post-apocalyptic surface only with special permits and artificial respirators, and do so only to obtain raw material that can then be mediated into suitable lecture topics. (The presence of renegade humans on the surface, which Kuno later recounts in his escape narrative, suggests that rather than the surface lacking adequate oxygen, machine-dependent lungs have simply lost their capacity to breathe mechanically-unprocessed air.) As the ship glides over Asia, Vashti's dread of first-hand bodily sensation succeeds in draining color even from the sublime. When the window of her ship's cabin reveals a rosy-fingered sunrise and the majestic verticality of the Himalayas, Vashti is indignant, and blots them out with a response of "No ideas here"— and promptly shuts her blinds (103).[6] Vashti's failure to be "in touch" (literally) is further revealed in the shock she feels when a flight attendant dares make physical contact to help Vashti gain her feet when she nearly falls. "How dare you!" Vashti exclaims. "You forget yourself!" The narrator explains, "People never touched one another. The custom had become obsolete, owing to the Machine" (101). In these ways Forster again recalls Swiftian satire in representing Vashti as pure mentality dissociated from direct physical experience, recalling the discarnate rationalism of Laputa in *Gulliver's Travels*.

Vashti's machine-mediated "othering" of the body can be understood broadly as a valorization of reflective reason that turns primary bodily sensation into an Other—or, more specifically, as a method that privileges rationally organized sensation over more visceral modes of awareness such as olfaction, tactile sensation, or even imagination. In particular, Vashti's cell (which is endlessly replicated without variation throughout the entire underground hive of the Machine) represents a condition in which knowledge is obtainable only through technological mediation and self-enclosure. Historically, this depiction recalls both the shape and the function of the *camera obscura*, a device which acted not only as a precursor to photography but also as a quintessentially Cartesian interface between body and world. In *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*—an important revisionist reading of the *camera obscura* device—Jonathan Crary emphasizes its Cartesian, quantitative aspects and shows how two paintings by Vermeer, *The Geographer* and *The Astronomer,* each represent this rationally mediated view of the world (see Figure 1, below).

Crary's descriptions strikingly recall the narrator's account of Vashti's cell in "The Machine Stops":

> Each image depicts a solitary male figure absorbed in learned pursuits within the rectangular confines of a shadowy interior, an interior punctured apparently by only a single window. The astronomer studies a celestial globe, mapped out with the constellations; the geographer has before him a nautical map. Each has his eyes averted from the aperture that opens onto the outside. The exterior world is known not by direct sensory examination but through a mental survey of its "clear and distinct" representation within the room. (46)

Figure 1. Vermeer's paintings *The Geographer* and *The Astronomer*.

Crary concludes that under this Cartesian paradigm, the Geographer and Astronomer actually *require* such isolation in order to come to any knowledge whatsoever. The world of qualitative sensation must first be abjected as a contaminant. Quantifiable sensations are then distilled and turned into "ideas" that attain value only because they have been culturally produced. For Vashti, the attempt to derive knowledge from direct perception would thus simply be gauche—before sensations can be registered as "ideas" they must first bounce off of the interpretive mirror of society. In addition to abjecting input from the seemingly "less rational" senses than sight, this reduction of the world to technological mediation and quantification also rejects imagination in favor of empirical data. As Paul March-Russell argues in a recent essay, "the citizens of 'The Machine Stops' have exchanged imagination for ideas" and such ideas "do not comment on the mind's capacity for imaging the world but mirror the world as an objective given" (64). The criterion of objectively faithful "mirroring" is crucial to an epistemology of rationalized isolation that quarantines the sensing subject from the object of knowledge.[7] The narrator's very introduction to the story, "Imagine, if you can" (91), thus already betrays a machine-subverting agenda on the level of form by demanding that the reader behave in ways counter to Vashti, i.e., that he or she should instead participate imaginatively in picturing the account that follows.

To Vashti's horror, when she arrives and sees Kuno in person she discovers that he has been experimenting with an epistemology far removed from that propounded by the Machine. By secretly exercising his body and discovering a passage to the hazardous surface outside, Kuno has embraced a new and forbidden mode of awareness, namely, fleshly participation. (Kuno began his radical exercise regimen by using his pillow as weightlifting equipment, which demonstrates just how enfeebled his mechanically-mediated body had originally been!) Vashti is astonished equally by Kuno's heresy and by what he has achieved through muscle-power alone. Kuno has in fact reclaimed his body by exploring the connective possibilities of sinews instead of

mechanism or mentality. Even by the early 20th century it had become a truism that communication technology and mechanized travel both abolish physical distance. In Forster's indeterminately deep future where food, entertainment and information all get conveyed to people instead the other way around, Kuno's concern is that along with such an abolition of physical space has come an abolition of humanity itself. Because humankind has severed its connection with un-mechanized reality, both nature and the body have been lost, and both may only be reclaimed through direct sensory engagement, as Kuno relates here to his mother:

> "You know that we have lost the sense of space. We say 'space is annihilated', but we have annihilated not space but the sense thereof. We have lost a part of ourselves. I determined to recover it, and I began by walking up and down the platform of the railway outside my room. Up and down, until I was tired, and so did recapture the meaning of 'near' and 'far'. 'Near' is a place to which I can get quickly on my feet, not a place to which the train or air-ship will take me quickly. 'Far' is a place to which I cannot get quickly on my feet; the vomitory is 'far', though I could be there in thirty-eight seconds by summoning the train. Man is the measure. That was my first lesson. Man's feet are the measure for distance, his hands are the measure for ownership, his body is the measure for all that is lovable and desirable and strong." (105)

Here Kuno takes Protagoras' famous dictum and literalizes it with his body: i.e., he says to himself "Man is the measure," by which he means that his own fleshly body has become the new canon for measuring the world (note how he gauges physical space in "feet"). In this way the repressed body not only returns to claim physical space, but also displaces mechanical standards of measurement.[8] Furthermore, Kuno's corporeal recapturing of the "near" and "far" subdues the cartographic impulse that we see in the enlightenment-era paintings of Vermeer. Instead of mapping space abstractly through the media of compasses, globes, and maps, Kuno experiences it first-hand (or better yet, "first-foot") through concrete sensation and self-initiated muscular exertion.[9] The upshot of Kuno's project, understood phenomenologically, is that one's experience of both the world and the body becomes radically altered depending on whether the terrain is encountered by way of one's own coordinated limbs or via a coordinate-laden visual representation.[10]

Kuno's victorious escape to the surface—in which he emerges, bloodied, to see his first wild landscape and glimpses a renegade woman dwelling in the lands above—echoes and in some measure inverts Plato's story of the Cave. Unlike Plato's prisoner, Kuno had not been held captive by his senses but rather by his own overdeveloped critical faculties. But like Plato's escapee, Kuno returns underground both bedazzled by the light and zealous to overthrow the existing system, which make him a danger to the established mechanical order. For his disobedience, Kuno is threatened with "Homelessness"—a penalty in which outcasts are left to die from exposure on the surface of the earth without a respirator (during his escape, Kuno had only been able to breathe by inhaling sips of Machine-produced oxygen from the open escape hatch). Kuno escapes this penalty and is instead reassigned to a new enclosure close to his mother. But Kuno's embodied actions have left their mark on the system: in order to combat other body-embracing insurgents like Kuno, the Machine bans all respirators and reestablishes religious worship (i.e., a fundamentalist devotion to the Machine). But Kuno insists not only that others feel as he does, but also that people dwell on the surface already, free from the apparatus of the Machine. Soon Vashti receives an audio-only call from him in which out of the

blackness Kuno simply says "The Machine stops" (117). And before long, it does. The Machine's music starts to play incorrectly, the climate-controlled air begins to smell foul, and control buttons stop working. Ultimately the Machine shuts down and its hum vanishes, and most of the population dies from the shock of such silence and perceived disconnection; they have no other way to eat, interact, or even sleep without the Machine. As the airships crash and explode above them, Kuno kisses Vashti—at last making physical contact with his mother. Ultimately, their underground enclosure ruptures like a honeycomb and "for a moment they saw the nations of the dead, and, before they joined them, scraps of the untainted sky" (123). Such radical un-enclosure, for all its sublimity, proves as lethal to their frail bodies as a killing jar.

Where the Machine Stops: Forster's Nostalgia for "Beautiful Naked Man"

Although "The Machine Stops" concludes with the spectacular death of its primary characters Kuno and Vashti, the narrator seems much more interested in presenting a generalized homily on the doom of Machine-mediated humanity as a whole, framing the horrifying conclusion in archetypal terms:

> […] beautiful naked man was dying, strangled in the garments that he had woven. Century after century had he toiled, and here was his reward. Truly the garment had seemed heavenly at first, shot with the colours of culture, sewn with the threads of self-denial. And heavenly it had been so long as it was a garment and no more, so long as man could shed it at will and live by the essence that is his soul, and the essence, equally divine, that is his body. (122)

The narrator's plea here on behalf of "beautiful naked man" demands close attention, especially because of its dependence on the governing metaphor of the "strangling garment" as the source of humanity's downfall. If cultural and technological mediations are indeed a *garment*, then Forster's idealized vision conceives such garments as something that we ought ideally to be able to put on and take off at will, like a sweater. Such provocative imagery involving clothing (or lack thereof) is crucial not only here but throughout Forster's text. As we saw earlier, Vashti had not been merely clothed, but "swaddled." The act of swaddling not only wraps but restrains (and pacifies), suggesting Vashti's passive entanglement in the vestments of culture, and thus that she was constrained to a limbless, enfeebling state of infancy before the Machine. Whereas swaddling protects a baby by restricting the movement of flailing body parts, for a mature adult such restriction on physical action constitutes a straitjacket. The Machine has attained what Gorman Beauchamp calls "sovereignty through dependency" (57). It is thus important that Kuno's first gestures at liberation from the Machine specifically involve the unmechanized employment of his own limbs: he treads the tunnels with his own feet (instead of rolling in a mechanical chair), and climbs a ladder with his bare hands (instead of pressing a button for an elevator). Kuno exercised—as he put it—until his "flesh ached" (106). Significantly, in addition to his use of physical limbs and musculature, Kuno marks his desire to strip away the cultural apparatus with precisely the same imagery used in the narrator's homily, i.e., in terms of shed clothing:

> I felt that humanity existed, and that it existed without clothes. How can I possibly explain this? It was naked, humanity seemed naked, and all these tubes and buttons and machineries neither came into the world with us, nor will they follow us out, nor do they matter supremely while we are here. Had I been

strong, I would have torn off every garment I had, and gone into the outer air unswaddled. But this is not for me, nor perhaps for my generation. I climbed with my respirator and my hygienic clothes and my dietetic tabloids! Better thus than not at all. (107)

For Forster, dystopia thus ensues when technology and culture swaddle rather than adorn—or to mix my metaphors, when culture becomes an iron lung that performs the job of breathing for us rather than acting as an extension of our own lung capacity (as seems literally to be the case in the narrative). The fact that capital punishment in Machine-society is achieved through "Homelessness" (i.e., death by exposure) only further exemplifies Forster's attempt to represent the Machine as just such an iron lung. The priests of the Machine are able justify its supremacy by saying something to the effect of "If you don't like the Machine, then go ahead, experience life on the surface without it—and suffocate." Because death inevitably results from the deprivation from mechanical swaddling, the Machine insidiously comes to seem that much more originary (indeed, motherly) and self-validatingly authoritative.

The validity of Forster's metaphor of technological mediation as "strangling garment" is, however, open to strong critique. Philosophers such as Martin Heidegger, Maurice Merleau-Ponty, and Paul Virilio would of course challenge Forster's basic metaphor by arguing that technology's effects do far more than merely clothe their users. Rather, technology becomes a mode of awareness in itself, something so pervasive that it infiltrates the very shape of our world-view rather than just accessorizing it. In Gorman Beauchamp's reading of the story in "Technology in the Dystopian Novel," Forster's technotopia exemplifies the Machine as an autonomous force which, once created, becomes an agent unto itself over which we maintain no more control and therefore ought to fear (what Isaac Asimov termed the "Frankenstein Complex"). In this reading Forster's metaphor of the garment seems that much more ill-fitting because the Machine employs specifically "mechanomorphic" effects on its subjects—people themselves become mechanical or, as Thoreau once put it, "Tools of their tools" (see Gorman 57-60).[11]

The metaphor of the technological garment is thus all the more awkward when the Machine becomes the active agent, ensuring that we fit it rather than that it fit us. Technology moreover so permeates our everyday interactions that it is not a simple matter to pinpoint each particular item of technological "clothing" we wear in order to shed it on demand. Some technologies feel more "natural" than others—and over time, become more like skin than clothing.[12] As computer scientist Alan Kay puts it, "Technology is anything that came out after you were born" (qtd. in Kelly par. 1). For instance, although for most adults the Internet still *feels* technological, we forget how we naturalize other everyday technological interfaces like eyeglasses, eating utensils, shoes, clothing, houses, and extensions like writing that feel so basic to our human identity that we fail to realize they are even technological at all.[13]

Probably the most serious problem with Forster's notion of "mediation as garment" is that this image presupposes that there exists an originary, technology-free body *underneath* that garment. But as Donna Haraway and N. Katherine Hayles have amply demonstrated, humans exist in an "always already" relationship with the technological. Human bodies have coevolved with technology to such a degree that our "given" bodily state at birth *already* bears the marks of technological prosthetics physically external to it. One reason why we humans have lost most of our hair and claws over evolutionary time is that we have made prosthetic substitutes.

Clothing usurps fur, and tools turn our claws into cast-off vestiges: whether we like it or not, parts of our bodies have been given over to technological extensions *ab initio*, and in consequence, our cultural "garment" is already an obligatory life-support system whether we like it or not. Forster's "beautiful naked man," ironically enough, thus bears conspicuous marks of technology precisely *because* of his nakedness, not in spite of it. Such pervasive technological integration through evolutionary history has had the result that human beings have become what cognitive scientist Andy Clark calls "natural-born cyborgs." Vashti has merely ridden her mechanical armchair down the shiny corridor of technological mediation farther than we have (as yet), having become so dependent on the Machine to do her work that she ends up entirely hairless, toothless and her body an unarticulated lump. The articulated body has not been destroyed, however, but only displaced—it now resides exoskeletally in the external, mechanical prosthetics Vashti uses exclusively in order to make sense of her world (as we do more and more ourselves).[14] For these reasons, Forster's attempt to find recourse in a natural or technology-free body in "beautiful naked man" is doomed to fail for the simple reason that there exists no such originary body to seek.[15]

Understanding the story this way, one can read "The Machine Stops" as representing two rival modernist fantasies for escaping alienation in order to encounter pure presence. For Vashti and other disciples of the Machine, the fantasy is to escape the limits of the body and thereby access pure meaning without the intervening constraints of sensory contact. She yearns to escape the cave of the senses and bask in the brilliance of mental illumination outside the corporeal shell—a perfect exemplar of what N. Katherine Hayles calls "the condition of virtuality" in which information "loses its body," having been "conceptualized as an entity separate from the material forms in which it is thought to be embedded" (2).

Vashti's fantasy of bodiless contact fails, however, because the repressed corporeal body keeps coming back to haunt her as the hidden medium through which all information must be instantiated.

But the antidote, Kuno's rediscovery of the corporeal body, also fails as a transparent or immediate experience of the world. Without there being a concrete *point* of contact—whether it be through tactile sensation, vision, taste, smell, etc.—no contact can happen at all. Flesh therefore performs peculiar mediations of awareness of its own. Kuno's vision is thus also a fantasy—a dream of escaping the logic of supplementarity in order to touch pure presence through fleshly immediacy. In fact, what Kuno takes for the "imponderable bloom" of unmediated contact turns out to be, ironically, a species of privileged *remediation*, a term Jay Bolter and Richard Grusin use for the reconfiguring of one medium in terms of another. In this case, Kuno's supposed experience of unmediated contact comes from his naturalizing the fleshly interface to such an extent that it appears to be no interface at all—and questions about its mediating role get even more complicated when you read Kuno's description of his physical encounter with earth's surface. His account of the "imponderable bloom" of fleshly contact reveals that some significant "pondering" is in fact going on in the physical encounter, especially in how he verbally invokes more-than-physical supplements to make physical experience fully present to himself. In a passage which recalls Plato's argument for the immediacy of speech over writing in the *Phaedrus* (and which proves vulnerable to precisely the same type of deconstructive critique), Kuno narrates to his mother his full-bodied experience on the earth's surface.

> You, who have just crossed the Roof of the World, will not want to hear an account of the little hills that I saw—low colourless hills. But to me they were living and the turf that covered them was a skin, under which their muscles rippled, and I felt that those hills had called with incalculable force to men in the past, and that men had loved them. Now they sleep—perhaps for ever. They commune with humanity in dreams. Happy the man, happy the woman, who awakes the hills of Wessex. For though they sleep, they will never die. (110)

Note how Kuno's ostensibly unmediated experience has been filtered largely through the lens of an idealized history of England, and how a poetic outpouring ensues. As a consequence of his pre-existing ideas about the surface (derived, he admits, from lectures), Kuno emerges from the mechanized underworld not into a realm of uninterpreted color-patches and gross haptic sensations, but rather into a sleepy pastoral enclosure made of sinews and skin, a Anglo-Saxon history-infused, romance-supplemented dreamscape. He concludes, "I have seen the hills of Wessex as Aelfrid saw them when he overthrew the Danes" (110).[16]

In his exuberance for the body, Kuno seems not to recognize just how figurative his own bodily sensations have become. And his fleshly mode of awareness does more than just mythologize; it also anthropomorphizes. In order to register for Kuno's hyper-embodied attunement, the landscape outside must in turn become a living body itself: turf covers the earth (in his words) "like a skin" and under it "muscles rippled" (110).[17] In short, Kuno's supposedly "raw" experience actually comes pre-cooked. His passion for the concrete and first-hand echoes the imagists' credo "No ideas but in things," but these "things" still inevitably enter one's awareness with ideas built-in. To update Kant with contemporary metaphors, one might say that Kuno unconsciously wears a heads-up display that overlays interpretive information that structures even his most visceral sensations.[18] Or, more charitably, one might read this passage as Kuno's attempt (paradigmatic in a modernist text) to reenchant a wasteland through not only the body, but imagination. Kuno's verbose and artful textualization of landscape into a living body of muscles and skin should perhaps be no wonder, then, considering the times in which Forster writes. As Christine Van Boheemen puts it, "What nature was to romanticism, the body is to modernism: virtually lost hence always talked about" (24).

Flesh, Machinery, and the Myth of Transparency

Kuno's canonization of the body and Vashti's abjection of it both unwittingly fall prey to what Jay Bolter dubs "The Myth of Transparency," namely, the mistaken conviction that one can ever have "pure, unmediated experience." But such an error is understandable. When everyday human activities require gross bodily contact in order to survive (routinely walking, running, digging roots, and killing animals, for example—everything that Kuno seems to desire) one readily naturalizes the muscular body. Through regular, everyday use, the interface of the body disappears from one's awareness as an interface, becoming invisible as mere "equipment" in Heidegger's terminology. Vashti, in contrast, naturalizes a "post-body" Cartesian interface of sight-privileging, hyper-quantified mediation that makes the corporeal body into an objectifying Other. However, seen from a transhumanist perspective, Vashti's mechanically-mediated body is on the contrary *extended* through such external prosthetics and becomes thereby enhanced, not diminished. In this view, Vashti's immersion in an interface-world of buttons, video screens and tubes bestows on her an extreme "proprioceptive coherence" (Hayles "Condition" 91) with

the Machine. Vashti's perception of what counts as her body would thus include the machine within it, representing a state of literal, naturalized cyborg-hood (which perhaps presents only a somewhat hyperbolic version of the hypermediating interfaces, iPod to Bluetooth to Facebook, already so prominent in cyberculture today).

As Hayles explains in her book *How We Became Posthuman*, the effect of such interfaces is a destabilization of bodily and subjective identity: "the boundaries of the autonomous subject are up for grabs, since feedback loops can flow not only *within* the subject but also *between* the subject and the environment" (2). For Kuno and Vashti both, the connecting interface appears natural and "immediate" (the latter being a term that suggests not only rapidity but also an unmediated mode of connection). But what accounts for the seeming "immediacy" of an interface (or the boundaries of the seemingly "given" body) is dictated only by habit, not ontology—and if that is true, can either one of these interfaces claim priority as a more "authentic" mode of contact with the world?[19]

Forster's valorization of bodily contact and the notion that it constitutes direct, unmediated connection is not reserved only for Kuno and naïve folk-philosophers, however, even post-Derrida. In the excellent, seminal essay "Images of a Networked Society: E.M. Forster's 'The Machine Stops'" Marcia Bundy Seabury asserts that "Networked life consistently interposes a device *between people and direct experience*" (66, italics mine), which seems to imply that if only technological devices were removed, immediacy of awareness would inevitably ensue. Similarly, in his essay "Telepistemology: Descartes' Last Stand," Hubert Dreyfus, a well-known scholar of existentialism and phenomenology, naturalizes the bodily interface by suggesting that contemporary telepresence technologies "remain isolated instances of mediated interaction *in contrast to our direct access to the everyday commonsense world*" (56, italics mine). Dreyfus thus makes the divide between technologically-mediated interaction and gross bodily contact seem unproblematically secure—indeed, ontologically distinct—by contrasting "tele-technologies and the telepresence they deliver on the one hand" with "what little remains of our *everyday unmediated interaction with people and things*, on the other" (56, italics mine).

But the carefree invocation of the terms "direct" and "everyday" here by Seabury and Dreyfus ought to give us pause. Whose "everyday" are we talking about, exactly? The immediacy humans once felt only through gross physical contact now in many respects has given way to virtualized interactions that now *feel* just as immediate: consider the muscle-memory we invoke in our use of a computer mouse, or witness our effortless navigation of cyberspace on the world-wide web. And now whenever you mutter that you need to clean your "cluttered desktop," chances are that you're not talking about a physical desk-space anymore. Proprioceptive coherence is at work again, extending our bodily boundaries to include the technological interfaces with which we interact routinely. It's thus not the body *per se* that feels unmediated, but rather, any habitual set of interactions that does. Or, another way to put this might be to say that any habitual set of interface interactions actually includes the interface as part of "the body" as it is phenomenologically encountered. Technology thus discloses the difficulty in drawing discrete, well-defined boundaries around the embodied self.[20]

With further examination, the questions "The Machine Stops" raises about the authenticity of mediated contact become progressively trickier. If we try to argue not merely on the basis of habit but by way of some more defensible criterion, consider the presuppositions one must invoke to make sense of what me mean by "authentic" or "unmediated" contact even in the

most "everyday" of circumstances. Is a foot a more "authentic" connection to the ground than rubber tires on the road? Kuno and many contemporary ecocritics would insist that the answer is yes. But if so, then why? If we do grant that feet are more authentic modes of connection than tires, must we then insist that these feet be bare to ensure "genuine contact" with the earth? At what point does the stripping away of interfaces ensure that one is at last "authentically in touch" with nature? Consider the problems that borderline cases raise: do moccasins still count? What about sandals? Nikes? Gortex hiking boots? Prosthetic limbs? What if one's "unmediated" nature hike was fueled by gasoline right up to the trailhead and one's backpack lunch in "nature" includes an organic Gala apple shipped in by fossil-fueled machinery all the way from New Zealand? Is such a hybridized connection with the landscape fleshly, mechanical, or both?

If we press this argument further, we are led to ask why certain technological prosthetics—like eyeglasses or a blind man's cane—are considered more "natural" than artificial limbs or motorized vehicles. Is there, then, any legitimate basis for naturalizing certain interfaces and "artificializing" others? On these lines Hannah Arendt argues that some technologies are in fact more natural than others.

> There never was any doubt about man's being adjusted to the tools he used; one might as well adjust him to his hands. The case of machines is entirely different. Unlike the tools of workmanship, which at every given moment in the work process remain the servants of the hand, the machines demand that the laborer serve them, that he adjust the natural rhythm of this body to their mechanical movement. (qtd. in Elkins 53)

At first Arendt's method for privileging the "naturalness" of certain interfaces over others seems promising, until one recalls that proprioceptive coherence happens not only with hand tools but also between humans and sophisticated computers, video screens, cell phones, and everyday machinery like the automobile. The dividing line between Arendt's "natural" tool and "unnatural" machine has by now become blurred beyond hope of recognition; over time our habitual use of machine interfaces has made them as transparent today as our use of Neolithic grinding stones might have been ten thousand years ago. If such issues seem problematic right now, imagine how thorny they will become when in the near future robotic exoskeletons will enable literally anyone to hike tall mountains by doing little more than twitch their muscles to trigger mechanical servo-motors.[21] Kuno's myth of the pure body, and Forster's suggestion that an originary body lies beneath the dress of culture, are poorly equipped to help us resolve (or even debate) such complex and vexing questions.

But Kuno is far from alone in naturalizing the bodily interface and thereby privileging the illusion of fleshly transparency. Many of us (especially nature writers and those in ecocritical circles) readily do so, consciously or not. And even though equating flesh with immediacy is (I would contend) a mistake, Dreyfus and others are absolutely right that something existentially significant happens to us based on our specific modes of interaction with the world. Just because all contact must be mediated *somehow*, it does not follow that no value distinctions can be made between different modes of mediation. In *Understanding Media*, Marshall McLuhan made the vital point that technologies in fact extend the body—but always at some cost. As he put it, "Extensions alter perceptions"—and, significantly, they *amputate* at the very same time they *amplify*. Using a foot for locomotion brings forth a radically different world,

phenomenologically speaking, depending on whether it is used to walk or to press a car's accelerator pedal. Employing the foot to hit the gas can lead to enchantment—a delight in the amplified aesthetics of whirr and blur—but with it comes alienation from the loss of other modes of sensory contact such as touch and smell that one encounters when walking. Ultimately, the very perception of what counts as "self" or "body" in the first place becomes altered by the bodily or technological interfaces one uses. As we interact in our everyday world through interfaces, we often become blind to the fact that they are interfaces at all—and we typically only notice them when they become fatigued or stop working properly. Kuno, in contrast, wants to be constantly reminded of the fleshly interface of his body by working it repeatedly it until it aches, in order that he might feel constantly present in the processes involved in his own locomotion.[22] For Kuno, the use of the body thus represents a powerful mode of resistance to the Machine because it reclaims human agency in the performance of everyday activities.

Like Kuno, most of us perceive some modes of interaction as distinctively "more real" than others—however hard this might be to demonstrate—and not merely as "different." It feels "more real" to actually touch skin to sandstone and feel its gritty texture slide between our fingertips than to sit inside a climate controlled automobile behind tinted glass and just "spectate." Reality, as Kant hinted long ago, seems to inhere in what resists or "pushes back." In *Desert Solitaire*, Edward Abbey famously argued that you can't see anything in the Arches until you get out of your car and drag your body across slickrock till you leave a trail of blood in your wake. Perhaps he's right. All that concerns me in such assessments is how we so easily employ the standards of our own "everyday" circumstances to dictate what counts as "real" vs. "inauthentic" encounters with the landscape in such a rapidly changing world.[23] We've already naturalized the interface of the shoe, the eyeglass, and the contact lens to such a degree that they feel simply "given" when in fact these all were once radically new technologies. Whatever the future might be, its "everyday" will not be *our* everyday, so to responsibly examine questions as to what counts as authentic "connection" (connection being of course Forster's lingering concern throughout his works) demands that we use criteria other than those which merely feel "natural" to us at any given state of technological development.[24]

If Forster's dystopian fable seems at all compelling today, one-hundred years after its initial publication, it might be for one of the reasons Marcia Bundy Seabury suggests, namely that totalitarian dystopias like *1984* seem right now "less imminent than Forster's of satisfied individuals sitting before their personal computers" (61). She goes on to raise the vital allied point that in Forster's world of the Machine, "People see not the forces of nature but rather only the machine and the walls of their man-made rooms […] shut off visually from a world they did not make" (63). This insight highlights the peculiar ecocritical significance of Forster's fable in showing how not only the representation of nature, but the failure to represent nature, itself betrays a particular ecological world view. For the denizens of the Machine, the Machine is a self-enclosing all. Outside its Cartesian theater there exists no "big outside" (to invoke Dave Foreman's term for wild places) to count as a reference point for either health or sublimity. Vashti deflates any such potential in her blanket condemnation of the surface world as seen from the airship: "There are no ideas here" (103).

Keeping such concerns in mind, perhaps a useful ecocritical approach in accounting for the role of technology in "connecting," then, might be to shift one's focus. Instead of asking if a particular embodied (or disembodied) mode of connection is "authentic," one might ask instead

with whom (or what) one connects in the first place. In a world (like Vashti's) in which everything one encounters is either human or human-produced, the more-than-human Other vanishes, and any perceived relationship with it is severed. But holding technological prosthetics liable for such dissociation, as Kuno does, is over-simple. Recollect the iconic image of the boot in the film *WALL-E* in which this man-made interface in fact reconnects people to the earth rather than dissociating them from it. Likewise, in James Cameron's recent film *Avatar*, only by inhabiting remotely controlled bodies are humans once again able to re-connect with nature. In *Interface Culture*, Steven Johnson further points out that in the present-day information age, the model of technology in terms of prosthetics has become outmoded. Extending McLuhan, he contends that through virtual realities we now inhabit *competing environments*, some virtual and some natural, instead. For ecologically concerned authors like Richard Louv (*Last Child in the Woods*), technology and virtuality substitute for physical connection to wild places and thereby threaten to make nature passé, depriving human beings (especially children) of the physical connections required to make them fully human. In this view, techno-mediated nature and virtual landscapes evacuate the earth of aura.

Forster echoes this perception in "The Machine Stops," where machine-dominated landscapes and technical mediations mean that "All the old literature, with its praise of Nature, and its fear of nature, rang false as the prattle of a child" (98). Visual and sonic representations, both indefinitely replicable and playable on demand, drain potency from concrete physical presences; the hyperreal overtakes and subsumes the wild by becoming "better than the real thing." In a recent NPR story discussing the declining number of visits to national parks, environmental historian Mark Barrow similarly wonders if nature has now become "a place best seen at zoos or on plasma-screen TVs," which has led him to dub the 21st century "the era of mediated nature." Forster anticipates such a condition when his narrator states that "Those who still wanted to know what the earth was like had after all only to listen to some gramophone or look into some cinematophote" (114).

But is the problem with "mediated nature" the simple fact that it is mediated (an inescapable condition always at some level), or rather that with certain types of mediation comes a loss of connection with the Other, particularly wild places? Marshall McLuhan, often represented as an unmitigated technophile, argues intriguingly that one major problem with technological mediation is in fact the threat it poses to alterity. McLuhan would probably consider Forster's Machine-world a paradigm case of what he called "Narcissus as Narcosis." In the chapter "The Gadget Lover" from *Understanding Media,* McLuhan contends that the classic Narcissus myth is misread when construed as that of a boy falling in love with himself. In the story, Narcissus doesn't actually realize that the reflection he so adores is really an image of *himself*. In just this way, McLuhan continues, technological extensions create the illusion of Otherness when they really only provide a hall of mirrors for infinitely reflecting humanity back to itself.[25] Narcissus also produces narcosis, or numbness, by dulling sensations that would otherwise reveal that we're really only in contact with—and only seem to desire—our own productions and our own reflections, not contact with genuine "Others."[26] In case the threat of lost contact with the Other seems insufficiently concerning, consider a possibility that proponents of Deep Ecology raise, namely that our very identity is constructed only through such relations. Philosopher David Abram likewise insists, for example, that

> Humans are tuned for relationship. The eyes, the skin, the tongue, ears, and nostrils—all are gates where our body receives the nourishment of otherness.

> […] we are human only in contact, in conviviality, with what is not human. […]
> Direct sensuous reality, in all its more-than-human mystery, remains the solid
> touchstone for an experiential world now inundated with electronically-
> generated vistas and engineered pleasures; only in regular contact with the
> tangible ground and sky can we learn how to orient and to navigate in the
> multiple dimensions that now claim us. (Abram ix)

Unlike Vashti, Abram conceives the human being as in no way eccentric to the physical world. Far from representing the human being as a self-contained, immaterial, rational mind (like Vashti), Abram construes selfhood as constituted wholly by its relationship to a more-than-human, more-than-rational set of fellow characters. If Abram is right, then unless we routinely interface our bodies with the more-than-human world, through our isolation we risk losing something essential to our humanness. This ecocritical viewpoint highlights how it is not just the earth that is threatened, but us: lacking a vital connection to wild nature, people are in danger of devolving into quasi-human simulacra. Kevin DeLuca calls this condition of self-enclosed communication "technosoliloquy." The hypermediating modes of contact that networked computing provides should therefore give us serious pause and make us question to whom, exactly, we are networked—and who gets excluded. We ought also to consider whether or not as human individuals we still possess the bandwidth needed to experience the world invoking more senses than the visual, and ask if we still remember the protocols required to connect ourselves with the furred, creeping, burrowing, flying, and flowing more-than-human inhabitants of the earthly landscape. Do we hear the hum of insects anymore, or only that of our desktop machines?

Despite its excessive optimism at reclaiming "beautiful naked man" and for escaping wholesale from technological mediation, "The Machine Stops" succeeds admirably in forecasting specific liabilities inhering in 21st century cyberculture and in exposing the facile notion that technology can provide amplification without loss. Through habitual use, technologies that amplify the body inevitably substitute for and displace corporeal modes of awareness—or in the very least they hybridize with the body to a degree that makes the distinction between body and technology all the more difficult to sort out. Even if Forster's dream of reclaiming a technologically-unfettered human body succumbs to a modernist nostalgia for something that never existed, he is right to represent grim and alienating possibilities if we plug ourselves into modes of awareness mediated exclusively by machinery and telepresence technologies. If we are to keep fleshly modes of "only connecting" intact in the 21st century and beyond, we might be required to in some part "only disconnect" from those interactions—machine-mediated or not—that disembody us.

Endnotes

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[2] "The Machine Stops," a roughly 12,000 word short story by E.M. Forster, was first published in *The Oxford and Cambridge Review* in November, 1909. It was later included in the collection *The Eternal Moment and Other Stories* in 1928. The version I examine here is from E.M. Forster, *Selected Stories*, edited by David Leavitt and Mark Mitchell (New York: Penguin, 2001). Few in-depth discussions of "The Machine Stops" exist. Two books that do examine it at some length include Tom Moylan, *Scraps of the Untainted Sky: Science Fiction, Utopia, Dystopia* (Boulder: West View, 2000) and Mark R. Hillegas, *The Future as Nightmare: H.G. Wells and the Anti-utopians* (New York: Oxford University Press, 1967). Both texts emphasize the story's seminal role in 20th century dystopian literature, and in particular, its function as a response to technological utopianism in H.G. Wells. In contrast, in their introduction to Forster's *Selected Stories* (New York: Penguin, 2001), David Leavitt and Mark Mitchell highlight how Forster's story satirizes Oscar Wilde's media-hungry "Critic as Artist." In the past thirty years, fewer than a dozen academic articles have focused specifically on "The Machine Stops." Charles Elkins' essay "E.M. Forster's 'The Machine Stops': Liberal-Humanist Hostility to Technology" from the anthology *Clockwork Worlds* (1983) performs a strong reading of technological mediation in Forster's text, speculating on not only the effects, but also the possible causes, of excessive technological mediation. Gorman Beauchamp's 1986 essay in *Modern Fiction Studies*, "Technology in the Dystopian Novel" showcases Forster's story as a "true technotopia" (57) in which technology acts as an autonomous force fully determining cultural ideology. More recently, Marcia Bundy Seabury's "Images of a Networked Society: E. M. Forster's 'The Machine Stops'" (1997) and Silvana Caporaletti's "Science as Nightmare: 'The Machine Stops' by E. M. Forster" (1997) are particularly noteworthy for addressing the newfound relevance of Forster's text in the context of contemporary Internet-culture.

[3] I should emphasize that Forster's view is not simply anti-technological. For Forster, the test of a technology's value would seem to be bound up in its ability to either foster or undermine "connection." Ian Carter argues that although Forster considered automobile travel uncouth, for him the railway was "culturally neutral" and perhaps even capable of living up to its nineteenth-century moniker of "Great Connector"—as suggested in this passage from *Howards End*: "[Hilton] station, like the scenery, like Helen's letters, struck an indeterminate note. Into which country will it lead, England or Suburbia? It was new, it had island platforms and a subway, and the superficial comfort exacted by business men. But it also held hints of local life, personal intercourse" (qtd. in Carter 243). For Margaret Schlegel in *Howards End*, certainly the railway should not be held culpable for any technologically-induced disenchantment; rather, she "had strong feelings about the various railway termini. They are our gates to the glorious and the unknown. Through them we pass out into adventure and sunshine, to them, alas! we return […] the station of King's Cross had always suggested Infinity" (Forster *Howards End* 10).

[4] In case my use of the term "ecocritical" here seems over-broad, by using it I mean an analysis that examines how texts represent the relationship between humans and the natural environment (see Greg Garrard's *Ecocriticism* 5). Of course, narrowly speaking, ecocriticism's task is to examine "the relationship between literature and the physical environment" (Glotfelty and Fromm xviii). But I find more helpful Camilo Gomides' broader conception in which ecocriticism "analyzes and promotes works of art which raise moral questions about human interactions with nature" (qtd. in Phillips 16). In this vein I propose that the proper scope of ecocritical inquiry is best understood in terms of the questions texts raise rather than in terms of what they explicitly represent. "The Machine Stops" excels in raising questions about sensation-based vs. mental modes of interaction with the earth, even though little in it overtly depicts nature *per se*.

[5] In the world of the Machine, touching buttons displaces every other sense in which one might stay "in touch": "Then she generated the light, and the sight of the room, flooded with radiance and studded with electric buttons, revived her. There were buttons and switches everywhere—buttons to call for food, for music, for clothing. There was the hot-bath button, by pressure of which a basin of (imitation) marble rose out of the floor, filled to the brim with a warm deodorized liquid. […] The room, though it contained nothing, was in touch with all that she cared for in the world" (Forster 94).

[6] Note how Vashi's urge toward the abstract in this utterance inverts the Imagists' credo, "No ideas but in things" (i.e., for Vashti it would seem there are "No things but in ideas"!).

[7] Another reason why the Machine privileges the visual field is because vision is able to keep self and Other tidily distinct. As Theodor Adorno and Max Horkheimer point out in their essay "Elements of Anti-Semitism," other sensations like smell do not keep boundaries safely secured like vision does:

> In the ambiguous partialities of the sense of smell the old nostalgia for what is lower lives on, the longing for immediate union with surrounding nature, with earth and slime. Of all the senses the act of smelling, which is attracted without objectifying, reveals most sensuously the urge to lose oneself in identification with the other. That is why smell, as both the perception and the perceived—which are one in the act of olfaction—is more expressive than the other senses. When we see we remain who we are, when we smell we are absorbed entirely. (151)

Others can be kept Other, easily, if the only threat of contact is by way of photon or lightwave. Moreover, the reduction of the world to visual sensation provides the illusion that one can not only represent the world accurately, but also act on that world "from a distance" without being affected by it in turn. The world stays safely Other without risk of it infecting the self; consequently, visual sensation is the least susceptible to threats from the abject (smell and taste would in contrast be most at risk). In such respects it is significant Vashti's son Kuno, thousands of miles away from her, tells her through the machine that he wants to see her in person and never again through the machine.

[8] Caporaletti does excellent work situating Kuno's (and Forster's) resistance to the standards of machine-measure by arguing that "The Machine Stops" is not merely "a neo-Luddite assault" (Alexandra Aldridge's term) but rather a "campaign […] against the blindness of an absurd scientific fundamentalism that prefers to ignore the possible consequences of an excess of mechanization and technology and its inevitable effects on man's life. […] A liberal and a humanist at heart, Forster does not believe in a scientific panacea; indeed he fears that the progressive mechanization of the human environment, accomplished with the illusion of rendering it more and more adequate to man's needs, might instead in time reduce man to the measure of his artificial environment" (38).

[9] In line with Kuno's desire for self-originating bodily action, Beatrice Battaglia points out that the name "Kuno" suggests the Greek root for motion, *kinesis* (66). But so, too, does the word "cinema"—an interesting point considering how Kuno's goal is to eliminate technological mediation and the cinema in many ways is paradigmatic of it.

[10] Kuno's disdain for machinery and his zeal for corporeal interaction here mirror the body-affirmation of other prominent characters in modernist fiction, for example Constance Chatterley's desire to obscure the face and evade the sterile "mental life" in favor of the vitality of the loins in D.H. Lawrence's *Lady Chatterley's Lover* (1928). In Forster's own novel *Howards End* (1910), Leonard Bast's account of his long walk out of London draws praise from the Schlegel sisters—but only for as long as he confines his narrative to the sheer physicality demanded by his pastoral excursion. The moment he begins to mediate his account with literary embellishments, it becomes drained of sincerity. Such characters are all of course emblematic of a more general modernist urge to reclaim the "lost" body (see Van Boheemen 24). Although certain aspects of modernism (such as Futurism) are sometimes equated with rejection of the body, such an understanding mistakenly equates praise of the machine with a devaluation of the flesh. But when in 1905 the Futurist Marinetti declared "Hoorah! No more contact with the vile earth!" (qtd. in Virilio 73) he was not in fact seeking to evade corporeality. Far from it; like other members of the avant-garde, Marinetti yearned foremost simply to "make it new." Marinetti's "vile earth" represented stasis, limitation, and the passé; nature was to be abjected primarily because it was "the given," too old, obsolete. The avant-garde artist in contrast inhabited a world which required active transformation by art (one can detect similar sentiments in Whistler and Wilde on nature as aesthetic failure in the two decades prior). For Marinetti, it was the transformation of inert earthly elements into a frenzy of motion that inspired: "We say that the

world's magnificence has been enriched by a new beauty; the beauty of speed. A racing car whose hood is adorned with great pipes, like serpents of explosive breath—a roaring car that seems to ride on grapeshot—is more beautiful than the *Victory of Samothrace*" (Marinetti 187). Thus, Futurist art idealized machines as a breed of feral technology capable of outstripping lifeless sculpture from antiquity. Marinetti's fascination with industrial-era technology was moreover motivated by his capacity to "animalize" it; for him, rail technology suggested not dead matter in motion, but "deep-chested locomotives whose wheels paw the tracks like the hooves of enormous steel horses" (187). In these ways Futurism fused vitalism with mechanism; according to one critic, Marinetti's goal was thus not to transcend the flesh but to unite it with the machine in "a mechanical pantheism in which the machine acquires a soul and the mind becomes a motor" (Poplawski 152).

[11] Along these lines, Aldous Huxley observed, "…technology was made for man, not man for technology, but unfortunately [we have] created a world in which man seems to be made for technology…We do have to start thinking how we can get control again of our inventions. This is a kind of Frankenstein monster problem" (qtd. in Elkins 50).

[12] When I last taught "The Machine Stops" in my environmental literature class, many of my students found it compelling and thought-provoking—and challenging to their everyday use of telepresence technologies like the Internet and cell phones. One student even swore off her computer (not my intention) and turned in papers for the rest of the semester using a manual typewriter. (I didn't have the heart to remind her that the typewriter was itself a radically novel technology only a century-and-a-half ago!)

[13] Douglas Adams expressed this failure of technological awareness with characteristic wit in his essay "How to Stop Worrying and Love the Internet," published in 1999:

> everything that's already in the world when you're born is just normal;
> anything that gets invented between then and before you turn thirty is incredibly exciting and creative and with any luck you can make a career out of it;
> anything that gets invented after you're thirty is against the natural order of things and the beginning of the end of civilisation as we know it until it's been around for about ten years when it gradually turns out to be alright really.
>
> Apply this list to movies, rock music, word processors and mobile phones to work out how old you are. […] We no longer think of chairs as technology, we just think of them as chairs. But there was a time when we hadn't worked out how many legs chairs should have, how tall they should be, and they would often "crash" when we tried to use them. Before long, computers will be as trivial and plentiful as chairs (and a couple of decades or so after that, as sheets of paper or grains of sand) and we will cease to be aware of the things. (Adams par. 4)

[14] In contrast to a view that seeks to authenticate human identity using only one side of the nature/culture binary, the hybridity of the cyborg would appear to be (as Haraway argues) a better operating metaphor. In this view, we exist always already as "boundary creatures." "The dichotomies between mind and body, animal and human, organism and machine, public and private, nature and culture, men and women, primitive and civilized are all in question ideologically" (Haraway 163). Haraway contends moreover (with McLuhan) that technological prosthetics cannot be considered "external" to the subject. Is the blind man's cane a part of his body or not? The cane transforms differences detected at its tip and enters into a feedback circuit with the body just like nerve endings do, so to deny it bodily participation would seem arbitrary. The inability to draw clear lines in effect produces a new, "uncanny body" in which self and Other mingle without clear distinction. Haraway's postmodern approach to the human subject is paradigm-mangling; it does not just suggest new ways to spell out the self/Other binary but rather proposes a new grammar, a new ontology of self and Other that dissolves the binary opposition between them.

[15] Complicating the narrator's metaphor of technology-as-garment is Kuno's conception of exactly who wears that garment. As we have seen, Kuno insists that "Man is the measure"—but who is this "Man," exactly? In our contemporary postmodern condition one will be less willing than Forster to accept that there exists a given template called "Man" with a capital "M" who acts as an originating corporeal reference point for calibrating our rulers. Kuno himself was almost exterminated at birth because of his well-developed musculature (relatively speaking). But is this muscularly-developed frame the image we ought to consequently identify with "true man"? What Kuno calls "Man" is itself only one style of mediating interface, namely, the naturalized interface of the athletic body—but it's not (as Heidegger might put it) the only way for a human being to "be." By naturalizing the athletic body as "the" body, Kuno in effect only inverts the binary opposition between Vashti's discarnate identity and his own, making authentic humanity equal "pure corporeality" instead of "pure mentality."

[16] Note how Kuno's myth of bodily purity is here combined with a myth of racial and national purity: Aelfrid was a ninth-century Anglo-Saxon King defending Wessex from the threat of foreign invasion.

[17] One might of course consider the possibility that Kuno is not in fact merely projecting anthropomorphic traits onto the natural landscape here. Ecophilosopher David Abram, for example, might argue that only now that Kuno has fallen under the "spell of the sensuous," does he encounter the world in as it truly is—namely, as living flesh open to the reciprocation of his own touch. See Abram's fascinating *The Spell of the Sensuous*.

[18] Kuno's predicament is reminiscent of that faced by environmental writers like Edward Abbey in *Desert Solitaire* and Annie Dillard in *Pilgrim at Tinker Creek*, both of whom were seeking unmediated contact with nature, and who ironically both constructed their pastoral excursions precisely on the mediating model of Thoreau's literary work.

[19] And of course, my use of the singular "the" for "world" here is especially problematic. It's not as if all interfaces simply connect to the same "real world" and then merely represent it differently. The interface one uses in part constructs and brings forth the very world in question. For a useful discussion on this question (and which relates the interface question to Francisco Varela and Humberto Maturana's theory of autopoiesis) see N. Katherine Hayles and Niklas Luhmann in "Theory of a Different Order: A Conversation with Katherine Hayles and Niklas Luhmann."

[20] A specifically ecocritical concern over such ubiquitous technological interfaces might argue that that a mouse-clicking, keyboard-tapping lifeworld makes us forget what else our bodies can do, and that a push-button mode of being-in-the-world reduces us to something less than human. (Proponents of posthuman integration with the techno-virtual would on the contrary insist that such closely coupled technological interfaces make us *more* human, not less.) Perhaps both are true. As elements entering (for example) the feedback loop of web navigation, our bodies find themselves simultaneously extended and truncated: we can travel with a swiftness and plasticity impossible through physical locomotion, but our corporeal body is reduced to fragments: strained eyes and tapping fingers substitute for a bodily whole. Such a decorporealized cybercultural image is, of course, much like that of Vashti. It's precisely this sort of mechanized body that environmental writers like Edward Abbey dread, because for them such mediations by definition imply a loss of contact with the real.

[21] Robotic exoskeletons—mechanical suits that enable wearers to travel by foot through mechanical means and to carry hundreds of pounds with mechanized hands—are already in full development (though they are not, as yet, quite as fancy as the ones apotheosized in the recent films *Iron Man*, *District 9*, or *Avatar*). In my home town of Salt Lake City, the company Sarcos has developed a line of robotic exoskeletons for lifting heavy cargo; see a fascinating (and somewhat disturbing) video of one in action here: http://www.youtube.com/watch?v=IYWd2C3XVIk Berkeley Bionics recently unveiled fully-functioning "exohiker" and "exoclimber" suits, which allow users to hike and climb wearing a machine-powered exoskeleton that amplifies a user's muscle-movement: http://www.berkeleybionics.com

[22] By stating, "I exercised" (106), Kuno also counters another insidious dystopian threat: verbs of agency had heretofore been largely reserved for the Machine (Seabury 64).

[23] For example, consider the little-known fact that, with practice, it is actually physically possible for the nearsighted to exercise their eyes and thereby strengthen muscles in order to see better—at least to some degree. But almost nobody does that. Those of us who lack 20/20 vision instead just correct such problems with the optical technologies of eyeglasses, contact lenses, or laser surgery. Now extend the notion of "technological correction" further. What will happen when in the near future each of us can be fitted with an affordably priced mechanical exoskeleton like I mentioned earlier? At that stage, what will be the point of exercising our actual muscles when we can instead use servo-motors as correctives that not only compensate, but amplify our strength? Is there any essential difference between correction through eyeglasses and muscular amplification via a mechanical exoskeleton here? If it is "authentic" to view landscapes through prescription lenses and to traverse terrain wearing Gortex boots, then why might it be "inauthentic" to travel with motor-powered thigh-muscles? Although some theorists might argue that the exertion of effort is what distinguishes authentic from inauthentic encounters with the landscape here, I would contend that such a characterization at best only accounts for part of the explanation. (No one considers squinting in order to see better as heroic, for example.)

[24] For example, in sharp contrast to Forster's equation of machine with mentality, it is worth noting how much more embodied computer interfaces have in fact become in recent years. Videogames like *Dance Dance Revolution* and *Rock Band*, as well as Nintendo's Wii console, make use of interfaces that require physical exertion from the player in order to perform actions represented in virtual spaces.

[25] For a stirring example of how a technological interface with the natural world can reduce nature to a mirror of ourselves, see Lowell Monke, "Charlotte's Webpage: Why Children Shouldn't Have the World at Their Fingertips." For recent work on connections between narcissism and cyberspace, see Kevin Robins, "Cyberspace and the World We Live In."

[26] In this way, McLuhan further troubles 20th century debates in critical theory about the difficulties involved in constructing self and Other. With "Narcissus as Narcosis," McLuhan (probably without knowing it) intriguingly inverts Lacan. In Lacan's "mirror stage," the infant mistakenly identifies as self what is actually an Other (i.e., an image). In "Narcissus as Narcosis," one mistakenly identifies as Other what is actually the self (i.e., a technological product).

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