Our Posthuman Past: Victorian Realism, Cybernetics, and the Problem of Information

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ABSTRACT: This essay argues that Victorian realism pre-imagines the conditions of early artificial intelligence by reading Elizabeth Gaskell’s Cranford (1853) alongside key cybernetic texts. In doing so, it claims that Victorian realism influences twentieth-century definitions of what it means to be human—definitions that have sparked contemporary debate about information and embodiment. By examining realism’s representation practices, information practices can be better understood, not just in the twenty-first century, but as part of an ongoing debate.

When the narrator of Elizabeth Gaskell’s Cranford (1853) relays “an astounding piece of news,” she pauses, so that she might first set the scene. The narrator’s companion is sitting, “much as usual, . . . in the blue chintz easy-chair, with her back to the light, and her knitting in her hand.” Mary, the narrator, is “reading aloud the St. James Chronicle.” “A few minutes more,” she goes on, “and we should have gone to make the little alterations in dress usual before calling time (twelve o’clock) in Cranford.”¹ News cannot be told without also situating the reader in the routines of the day and the things—the furniture, handiwork, and clothes—that mark those routines. In this, Cranford offers an unintended insight on Victorian realism more generally: namely, that information always stands in curious relation to material artifacts.

Indeed, realism’s representation of abstract information through material things has long been one of its defining characteristics. Just

to catalog a few more recent descriptions, Elaine Freedgood claims that “a host of ideas resided in Victorian things,” while Peter Brooks argues that “to work through the accumulation of things, of details, of particularities, could be considered nearly definitional of the realist novel.”

George Levine also identifies the “doubleness [of] imagination . . . and reality” as “intrinsic to the form” of the realist novel. The realist novel is invested, at the level of its most basic form, in the materiality of information, something that literary critics are more aware of than ever. As Daniel Hack wryly notes: “We are all materialists now.”

Rather than pursuing this insight into the form of the novel, however, I want to use it to introduce a radically different question: What can the realist novel tell us about the creation of modern information culture?

Recent scholars of information, like the narrator of Cranford, have argued that we cannot understand news without its material context. Yet surveying this scholarship, Lisa Gitelman notes that “even the most astute and exacting critics of cyberculture tend to signal a certain ambivalence about the bodies that electronic texts have.”

Scholars like Johanna Drucker, Mark Hansen, Katherine Hayles, Matthew Kirshenbaum, Lev Manovich, Mark Poster, and Gitelman herself have struggled to specify the relationship between information and materiality. Hayles famously describes how information


3. George Levine, Realism, Ethics, and Secularism: Essays on Victorian Literature and Science (Cambridge: Cambridge University Press, 2008), p. 217. This “doubleness” hasn’t always been accepted without comments. The representation of material objects was cause for critique by poststructuralists like Roland Barthes, who believed that it was a purely referential “reality effect” that merely pointed toward its own implacable textuality. Other critics, such as Katherine Kearns, follow Levine and defend realists’ “conscious agenda [to] communicate effectively using the shared markers of materiality.”


became separate from the machines that process, store, and retrieve it, tracing the crucial moment back to Claude Shannon, cybernetics, and the Macy Conferences of the mid-twentieth century. For her and others, this perception of information is culturally and historically contingent, and scholars like Hansen and Kirschenbaum argue in favor of a much more embodied understanding of information. Others, such as Aden Evans, construct a more clearly delineated binary between the “digital” or “abstract” and the “actual” or “material.” Whether it is in the Victorian novel or on a hard drive or in a conversation between literary critics or media theorists, information stands in contentious relation to its material form.

This critical debate, however, hinges on a questionable shared understanding of the very term “material”—Gitelman, in fact, notes the frequency with which the word appears within scare quotes. The convergence of new media scholars and critics of Victorian realism on this contested term is no historical accident; Hack argues, in fact, that we can trace the very slipperiness of the term “material” back to the Victorian era, that “the conditions, components, and consequences of writing now conjured by that term were put into discourse in the mid-nineteenth century.” Although blue-chintz easy chairs and dressing for a twelve o’clock call may seem very far removed from data packets and IP addresses, my contention is that they are not so far apart after all. In fact, in order to understand just how we came to our current understanding of information, we must first understand how and why the Victorian realist novel connects news and the artifacts of domestic routine.

This essay locates the history of information in the realist novel’s pre-imagination of the feedback loops and universal systems of cybernetics—the crucial moment when Hayles argues that “information lost its body.” Cybernetics, John Johnston argues, imagines human intelligence in “mimetic, representational terms,” building machines that materially imitated the human brain; of all the genres, realism mimics human intelligence and personality in the

most materialist way.\textsuperscript{12} In this reading, Victorian realism becomes part of a larger network of technologies: a precursor to cybernetics’ feedback loops; a literary definition of a quantifiable human; and a mediation of materiality and information. This essay departs from previous work on information theory because it neither looks to science fiction or the gothic to explain posthumanism nor contextualizes the novel through Victorian technology (for example, the railway or the telegraph).\textsuperscript{13} Instead, it argues that literary form prefigures technological innovation.

Realism and cybernetics both approach the replication of human intelligence and personality through the repetition of material details and habits; as both systems evolve, they begin to imagine ways to move from those particulars to a universal definition of the human. Realism’s verisimilitude comes, in part, from characters’ definitive, repetitive actions—for example, always sitting in the same chair to knit or reading the same newspaper. Cybernetics turns to a similar strategy, that of quantifying repetitive, material actions, in attempting to build an intelligent machine. Using the work of Ross Ashby and Norbert Weiner, I show how both the realist novel and cybernetics quantify the human, containing the possibility of disorder by representing human intelligence and personality as materially instantiated feedback loops.

The second section of the essay takes up this quantifiable representation of the human, arguing that this idea, which disrupts the notion of humans as intricate and idiosyncratic, proves surprisingly radical. The Macy Conferences (1946–53) have been identified as the moment when materiality and information separated, but I argue that we see this tendency happening even earlier, in the way


that realism, like cybernetics, extrapolates from specific, concrete instances of human behavior to universal definitions of “the human.” From there, the final section moves to contemporary debates about the materiality of information, arguing that realism has already prepared us to separate, and conflate, material details and abstract information—a process not unique to the digital world, but imagined in print over 150 years ago.

Repetition and Realist Form

In many ways, Cranford is quintessentially Victorian, in the ways usually invoked to mock the period. Its subjects are fussy spinsters primarily concerned with embroidering useless objects, wearing innumerable brooches, and maintaining their gentility. As my portrayal attests, Cranford is a novel given to tongue-in-cheek descriptions, perhaps because its own tone, especially at the beginning, pokes fun at itself. Even critical descriptions tend toward the gently mocking; it is a novel of “rubber bands and old ladies” or a “cow in grey flannel.”14 It is indeed a novel of “old ladies,” as it traces the day-to-day habits of the women—and they are almost all women—of Cranford, a quiet town in the shadow of industrialized Drumble (which is thinly fictionalized Manchester). The narrator, Mary, visits frequently from Drumble in order to report on the goings-on in Cranford. A frequent subject of the satire though is that there is very little going on in Cranford, precisely because the ladies live a life so heavily routinized: visits are never more than fifteen minutes long and only take place during certain hours; the same foods are prepared and consumed at the same times each day; and the women fill their hours with repetitive handiwork.

The lives of the Cranfordians are a litany of small moments scheduled for endless repetition. Such repetition forms the women’s aspirations to self-improvement, and it shapes the form of the novel itself. The realist novel depends on repetition of various kinds to guide its narrative and its characters. Repetition gives shape to the very things that make it seem real, that allow readers to believe in these characters and to find their life natural. Yet that repetition is inspired by the fantastic power of machine life, which is neither human nor natural. As the first truly industrialized nation, Victorian readers were caught between the modes of machine life and hu-

man life and counseled toward the “constant employment of their hands” and the “habits of industry” in their homes, clearly influenced by the newfound efficiency of large-scale repetitive labor. As Herbert Sussman argues, “the invention of machines that installed the heretofore distinctly human qualities of autonomy and intelligence into material forms of iron and wood [caused the] traditional distinction between the living and the mechanical, the human and the machine [to appear] to dissolve.” The leap from machine to human and back again has already been formally made on the pages of the Victorian novel.

The realist novel and cybernetics share the paradoxical effect that we more strongly identify something as human through repetition. Through routinized actions that have generative, interpretable meaning in the world, we identify these characters as “real.” Initiated as a loose grouping of satirical sketches that were published serially though ultimately bound as a single volume, Cranford makes an especially useful test case because it becomes a realist novel while we read it. Published in the era of “high” realism, Cranford’s moments of realism are typical of the genre, particularly in its representations of domestic routine. In its switch from satire to realism we can trace the emergence of the key features of realism, features that prove essential to quantifying replicable, believable humans. The distinction between the satire early in Cranford and the realism of the latter parts emerges primarily through their different uses of repetition—or their different treatments of being human. This movement from satire to realism, its coherence into a realist novel, allows us to tease out what exactly makes realism “real,” and, in doing so, to determine what effects that character formation may have.

Repetition has an integral, conflicted relationship to the realist novel, as critics from Jakobson to Derrida have shown. Shifting the balance from satire to realism requires entering into this conflicting relationship, where the very action that seems most to characterize the satire actually becomes the basis with which we unsettle the distinction between satire and realism. In other words, Cranford-as-satire or Cranford-as-realist novel both depend on the same patterns: the routines of the day, the “actions which it seemed scarcely worthwhile to perform, [yet] were all attended to in Cranford.”


narrates each of these actions in detail: the scrupulous saving and reuse of dried flowers, the twisting of paper into candle-lighters, the elaborate, unarticulated rituals surrounding daily tea time. Indeed, this is a novel obsessed with the narration of minutiae, painstakingly repeated.

While these repetitions serve to mock the characters, they come to do more than that: they also form the basis of these characters’ human-like qualities, the things that make them seem worth our empathy, investment, and care—in short, the things that make them read as real. The novel begins by tracing the habits of many different women, but it eventually settles on Matilda Jenkyns. Initially, Miss Matty’s silly, flighty habits are satirized, but she emerges as the novel’s gently dignified protagonist. As Matty’s habits cohere into something resembling an empathic character, the sketches begin to cohere into a novel; that is, by making a character human, we get a generic change from satire’s estrangement to realism’s verisimilitude. John Mullan insists on this link between character and genre, which is often overlooked by critics, in commenting plainly: “Nothing is stranger or more important in our reading of novels than the sense that we are encountering real people in them.” Yet these “real people” are a series of repeated actions, a carefully controlled sequence of operations.

Ashby, the British neurologist and cybernetician, describes this same process for machines when he stresses that artificial intelligence (AI) depends on a series of set rules that have multiple uses: “the function-rules must be fixed, their applications flexible.” His work in cybernetics focuses on replicating the processes of the human brain in a machine. In Design for a Brain (1952) and An Introduction to Cybernetics (1956), Ashby describes the machine system that would most closely mimic the human mind and its responses. His work depends on a series of set rules, on repetition. It is not simply the presence of repetition, however, that signifies human character. Indeed, Cranford abounds with silly repetition that only distances us from these characters. Miss Matty emerges as the heroine of the novel by transforming her repetitive acts. When, early in the novel, the town inflates unfounded tales of robbers, Matty succumbs to the hysteria and rolls a ball each night under her bed to ascertain whether a robber lurks beneath. Once she feels pity for the child of a sick traveling performer, however, her nightly ball-rolling changes into the repetitive acts of knitting and felting. Mary reports that

she “found Miss Matty covering her penny ball—the ball that she used to roll under her bed—with gay-coloured worsted in rainbow stripes.” Matty’s reasoning in response is astutely sympathetic when she explains why she remakes the ball for a child: “Although her father is a conjuror, she looks as if she never had a good game of play in her life.” In physically recovering the ball and repetitively knitting stripes to transform it from superstition to toy, Matty transforms her dotty, insular self with a more empathic, worldly self.

Changing her repetitive act renders Matty less of a caricature and more of a character—more, not less, human. Ashby notes that, physiologically, “the nervous system is able to develop ways of behaving which are not inborn and are not specified in detail by the gene-pattern.” This becomes the central problem of cybernetics: how to develop a machinic system that can “develop ways of behaving” that seem more human. But, inevitably, those ways of behaving must be based on routinized behaviors, what Ashby separates into “mechanistic” and “adaptive.” The realist novel grasps—and helps us grasp—that human behavior is not only wildly complex and varied, but it also has a routinized, mechanistic base. Being human may well mean being like a robot. Ashby’s machine, which is “mechanistic in nature and yet produces behavior that is adaptive,” mimics a pattern that plays out in almost all Victorian novels, as characters perform mechanistic repetitive acts, yet that repetition produces surprisingly divergent results. In order to have the crucial divergence, you must first have repetition; thus in order for Matty’s departure from ball-rolling to have meaning, the novel must first establish rolling as a repeated, meaningful act, whose alteration offers a significant change to that meaning.

By sketching a trajectory from the creation of the realist character to the creation of the cybernetic one, I am attempting to show how both endeavor to define the human by a series of rules and adaptations, and that these rules and adaptations define our understanding of the human. By extricating her ball from a silly nightly ritual and placing it at the center of a new ritual of knitting stripes, Matty begins to move from a silly object of satire to realist protagonist. Mary reports that, at the sight of the conjurer’s worried family, “we all forgot to be afraid.” Changing their ritual acts makes these characters less silly, not only because the acts are themselves less

22. Ibid., p. 1.
silly, but because they fundamentally shape their way of sensing the world: upon knitting the stripes, Matty reports that she “does not hear any more” of the robberies.24 This is not to say, of course, that Matty is no longer the subject of satire, but rather that the satire shifts to encompass the possibility that Matty is also more than a collection of laughable habits, that she may be character as well as caricature and that we read her as, essentially, human.

The collection of characters that form this realist novel bears a remarkable resemblance to what Ashby terms the “ultrastable system,” which is the central concept of Design for a Brain and his answer to the question of how the nervous system produces adaptive behavior. An ultrastable system is one that self-regulates so that it never enters what he calls the “critical state.” The ultrastable system is premised on the idea that behavior changes only if parameters change, so Ashby shows how systems can learn to automatically change parameters in order to control behavior, even without external input.25 The parameters (satire to realism) change as the repetitive behavior exhibited in the novel changes. The characters’ identity is predicated on repetitive acts that we must interpret empathically in order for the realist novel to cohere as a genre. In order for social satisfaction to occur in Cranford, we must see this repetition shaping the novel’s protagonist. Miss Matty’s tiny, repeated acts of noblesse oblige—that she always gives each customer an extra piece of candy or deliberately under-charges for her teas—are fundamental to the form of the novel. By seeing the novel as an example of Ashby’s ultrastable system, we see that the system’s stability is always predicated on continuous repetition and adaptation.

This repetition and adaptation is central to both cybernetics and the realist novel: both attempt to contain disorder by presenting humans as responsive to external feedback. Wiener, Ashby’s fellow cybernetician and Macy Conference attendee, argued that humans and computers are “precisely parallel in their analogous attempts to control entropy through feedback.”26 Controlling “entropy through feedback” means minimizing disorder by changing behavior. By turning her robber-discovering ball into a more appropriate child’s toy, Matty controlled the entropy threatening the town of Cranford; or, in more formal terms, this event controlled the entropy of satire with the feedback loop inherent to realism. It is not necessarily true, however, that controlling entropy is inherent to being human.

24. Ibid., p. 125.
After all, how many people always make good choices about the future based on the past? Wiener notes that “the past experience of the individual, can modify the pattern of behavior into one which in some sense or other will deal more effectively with the future environment”—not that it will. Instead of identifying something inherently human in the ultrastable system, in entropy control, cyberneticians, like the realist practitioners before them, have generated a systemic description of individual behavior that certainly can be true though not always is. This wishful thinking—namely, choosing to emphasize human agency—creates a particular view of the human, one that generates multiple tensions and problems in the years of AI research to come.

The Universal Human

Creating the human from an assemblage of repeated characteristics, a series of function rules, may seem unproblematically to replicate what already exists. This is the argument, which is prevalent from modernism to deconstruction, that realism is a retrograde form that simply replicates hegemony. This tone pervades discussions of cybernetics and AI as well, suggesting that early AI attempted merely to repeat, without developing a complex vision of autonomous machine life. Repetition, however, may offer realism’s and cybernetics’ most subversive potential: to duplicate, and thereby disrupt, what we understand as reality. By exposing the human as a series of function rules, both the realist novel and cybernetics disrupt our understanding of humans, and reality, as intricate, irreducible, and divergent; each form creates its own version of the universal human.

That the cybernetic understanding of the human so closely mirrors that of the Victorian novel is evidence of realism’s grasp on this tendency, what Georg Lukács calls realism’s ability to depict the “lasting features in people.” In doing so, he argues, realism captures “man in the whole range of his relations to the real world, above those that outlast mere fashion.” Lukács believes that in these repeated characteristics we capture the direction of human development, “tendencies of development that only exist incipiently and so have not yet had the opportunity to unfold their entire human and social potential.” That is, realism, far from being a retrograde or
A conservative form of art, is a form of foreshadowing or prediction. The tension within the Victorian novel between the specificity of individuals and the human as a universal condition anticipates what eventually becomes a critical debate in early cybernetics in figuring out what exactly is being, and what should be, replicated.

An interdisciplinary group of scholars attempted to hammer out these very questions on the nature of human and machine replication at the Macy Conferences. The multidisciplinary nature of the conferences created problems of communication and goal-setting, but also enriched the results of the conferences. Again and again, in attempting to define AI as a science, the participants in the conference discussed how they could achieve a universal sense of how to replicate the human. These conversations, as Hayles shows, permanently influenced the direction of AI studies and our understanding of the posthuman. The debates centered on the question of whether being human is variable, unique, and relative to individual perspective, or whether it is defined by universal, distilled truths that are absolute.

Ultimately, the Macy Conferences came down on the side of a universal, abstracted definition of being human. Cyberneticians argued in various ways that specifics are useful only as steppingstones to universals. The universality of scientific objectivity is fundamental to the formation of cybernetics; Geoffrey Bowker claims that “in cybernetics, memory is destroyed so that history can be unified.”

That is, all history becomes the history of cybernetics, a common past that leads up to the discovery of machine life. This “unified” history elides the messiness of variability and individual perspective. But, as Hayles points out, this elision did not happen without debate; one essential factor was the movement from “instantiated specificity to abstraction,” a move that we see discussed and debated again and again in early cybernetic work, especially that of Weiner and Warren McCulloch. The terms of that debate, however, are anticipated by similar debates happening within the realist novel. Realism depends on forging a universal view of the human, a replication we can all agree upon. In doing so, it picks and chooses what universal qualities to create from variability and specificity, just as cybernetics does. In this way, reading the realist novel prepares us for a vision of being human that is built on shared values.

Cybernetician McCulloch emphasizes the ways in which the body automatically extrapolates from specifics to universals: “learning


31. Hayles, How We Became Posthuman (above, n. 7), p. 61.
builds new order according to a law of use." McCulloch's prediction for machine life as a system of universals created from specifics arises from his studies in neurophysiology. But this problem—the question of how we arrive at universals that are derived from, and sensitive to, specifics—surfaces also in the pages of Cranford. The humor of the satire at the beginning of the novel comes from the individualization, the extreme oddity of each woman in the town. They are over-individualized for comedic effect in ways that are unflattering. Cranford's narrator Mary, for instance, describes the "individual small economies—careful habits of saving fractions of pennies in some one peculiar direction," emphasizing the individual, peculiar nature of these habits.

Mary admits that her own "individual small econom[y]" is string. She saves even the smallest length for reuse until her pockets are continually full of it. She then goes on to describe her professed amazement that anyone can even bring themselves to use india-rubber rings, or rubber bands, "which are a sort of deification of string." She invites us to laugh at her idiosyncrasy as she describes her extravagant devotion to the "deification of string": "To me an india-rubber ring is a precious treasure. I have one which is not new—one that I picked up off the floor nearly six years ago. I have really tried to use it, but my heart failed me, and I could not commit the extravagance." She not only individualizes herself to the extreme (who feels this strongly about string?), but singles out the rubber band as something to preserve indefinitely, without use. The satire here depends on each woman having an economy as extreme, as silly, and as individual as Mary’s—and they do not disappoint. There can be no universals from such specifics, for even the opening sally, "that almost every one has his own individual small economies," is invited to be rebuked by the reader. In order to laugh at Mary, the reader must find herself to be different, to be free from such overly idiosyncratic behavior. The satire depends on the negation of this attempt to universalize by each individual's specificity.

By contrast, when the novel turns to realism, we see this extreme individualism give way to a more transparent path from specificity to universals. The novel still depicts the specificity of its characters,

34. Ibid.
35. Ibid., pp. 51–52.
but the realist effect depends on extrapolating from their specific circumstances to universals. When Matty loses her money in a bank crash, for instance, her friends anonymously donate as much of their own as they can spare to support her. Her friend Mrs. Forrester has “very, very little” to live on, and when she expresses her sorrow that she cannot give Matty more of her money, the narrator comments that “to give up a twentieth of it will necessitate many careful economies, and many pieces of self-denial.” Mrs. Forrester’s self-denial is the nonsatirical version of the ladies’ “habitual economies.” Rather than mocking their meaningless saving of dried flowers, string, and scraps of paper, the novel elevates Mrs. Forrester for her frugality. This is the real meaning of sacrifice, the novel implies: daily withholding in service to another’s good. After Mrs. Forrester confesses how little she lives on, she then expresses the wish that she was rich, “and this wish she kept repeating, with no thought of herself in it, only with a longing, yearning desire to be able to heap up Miss Matty’s measure of comforts.” Her habitual economy translates into a meaningful repetition, one that triggers sympathy in the reader rather than mockery.

This switch from mockery to sympathy is, at its most fundamental level, the switch from satire to realism. We must be able to take these characters seriously in order to believe in the novel’s creation of the human. And taking these characters seriously means extrapolating from the specific to the universal. The narrator comments that Mrs. Forrester’s economies are “small and insignificant in the world’s account, but bearing a different value in another account-book that I have heard of.” Mary’s religious “another account-book” refers to a shared moral sense, a universal belief that what Mrs. Forrester is doing is important, difficult, and commendable. We can all agree, the novel suggests, that these are universal human values that, in this representation, become systematized and, hopefully, replicated.

Building a system out of incidentals is an ongoing project in making intelligent machines. While Ashby focuses on the homeostatic, self-regulating system wherein each incidental works to keep the overall system in check, McCulloch works from a different direction though to a similar end. He examines how the nervous system uses feedback to influence action, which he calls building a “new order according to a law of use,” or constructing universal laws out of the specifics of each piece of feedback. In this way, the variability of

36. Ibid., p. 163.
37. Ibid.
specific experiences can still create a universal law of behavior that is replicable in machines: “We seek general methods of designing nervous nets which recognize figures in such a way as to produce the same output for every input belonging to the figure.”\(^{38}\) In other words, to create universal outputs, no matter what the peculiarity of the input. This accords with Wiener’s observation that cybernetics captures an abstracted view: “the world as it actually exists is replaced in some sense or other by the world as it happens to be observed.”\(^{39}\) Overall, the goal, as McCulloch sees it, is to “make and read our record in the world.” McCulloch unintentionally articulates the shared goal of both realism and cybernetics: that representing human experience, whether on the page or in programmable machines, happens through the accumulation of individual moments that create universals.\(^{40}\) Together, these specific moments define a particular, universalized human.

### The Problem of Information

Some critics regard the development of posthumanism, including the universalized vision of the human, as happening purely discursively.\(^{41}\) Information’s embodiment, or lack thereof, has become a central site of debate for contemporary posthuman studies. Hayles famously argues that early cybernetics was fundamental in influencing the current conception of posthumanism as pure, dematerialized information. She locates the earliest moments of this separation of embodiment from information at the Marcy Conferences, where information was divorced from context and “conceptualized as if it were an entity that can flow unchanged between different material substrates.”\(^{42}\) This move is what made it possible for cyberneticians to conclude “that there is no essential difference between thought and code, [which] helped to construct the human as cyborg.”\(^{43}\)

Other critics, however, argue that seeing technology’s impact only within such discourse misses its material form and effect. Hansen, for instance, maintains that technology itself is embodied, what he calls “the robust materiality of technology.” He argues that tech-

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43. Ibid., pp. 61, 63.
nology does not just operate at the level of discourse, but rather that “technologies structure our lifeworlds and influence our embodied lives at a level, as it were, below the ‘threshold’ of representation itself.” Hansen concurs that information can be social and disembodied, but counters that it also affects us at our most visceral, “prior to and independently of our production of representations.”

In her more recent work, Hayles responds by proposing the dialectical “intermediation,” an interweaving of both sides, while Timothy Lenoir offers ways for “resisting interpretations of a posthuman future that depend on the notion that information is disembodied.”

In Hayles, Hansen, and others, we begin to see that this is primarily a problem of interpretation: Do we understand technology through its discursive or material formations? The formal techniques of realism, which may seem far removed from technology, have subtly influenced these interpretations that are, after all, essentially reading strategies. In the contrast between realism’s and satire’s approaches to representing materiality, we find that realism extrapolates, if uneasily, from materiality to information; it is the genre, after all, that believes that news cannot be disseminated without chintz, knitting, and newspapers. High realism and posthumanism are constitutionally worried over the relationship between bodies and discourse, materiality and information.

Satire, unlike realism, exaggerates materiality in order to mock it. In discussing the fashion of the Cranford ladies, Mary notes that they wear old gowns in order to save money and insist on new caps to appear in style: “If the heads were buried in smart new caps, the ladies were like ostriches, and cared not what became of their bodies.” She goes on to describe other attempts at style on a budget, wherein the same gowns are worn, adorned with accessories that increase in number (rather than style) as the formality of the event dictates. In honor of a “memorable Tuesday evening,” one of the ladies sports a memorable number of brooches: “Two were fixed negligently in her cap . . . ; one fastened her net neck-kerchief; one her collar; one ornamented the front of her gown; midway between her throat and waist; and another adorned the point of her stomacher. Where the seventh was I have forgotten, but it was somewhere about her, I am sure.” The resolute materiality of these accessories is undeniable; they are funny because they are “made of Scotch


pebbles” or “adorned the point of her stomacher.” The details of material construction and position draw attention to the silliness of Cranford custom; without these material details, we would have no point of reference, no sense for just how over-the-top the ladies of Cranford can be in carrying out their idea of gentility. While the material here does point to more disembodied forms of information (for example, custom and gentility), the focus remains firmly on the Scotch pebbles, the net neck-kerchief, and even the brooch whose location is uncertain.

Realism, on the other hand, often cannot help but abstract from materiality, even in its most earnest attempts to represent the material just as it is. When the citizens of Cranford attempt to think of ways that Matty can support herself after losing her money, the narrator muses on Matty’s skills, the things she has seen Matty make and give as presents: “delicately-wrought garters, a bunch of gay ‘spills’ [candle-lighters], or a set of cards on which sewing-silk was wound in a mystical manner.” These material items are mere stand-ins, however, for the information that Matty has to offer for sale and the problems of placing herself on the marketplace: “Would Miss Matty sell, for filthy lucre, the knack and the skill with which she made trifles of value to those who loved her?” Mary quickly concludes, “No! there was nothing she could teach to the rising generation of Cranford; unless they had been quick learners and ready imitators of her patience, her humility, her sweetness, her quiet contentment with all that she could not do.” Matty’s garters, spills, and cards are doubly abstracted here, turned from material items to one form of information (skills to market) and then, with the threat of being tainted by “filthy lucre,” hastily abstracted again into another form of information (Matty’s virtues of patience, humility, sweetness, and contentment).

Realism leads the reader from materiality to information, and believes that things are pure information, embodied. This framework becomes what Sam Williams identifies as one of “the intellectual arguments that will give birth to both computer science and artificial intelligence.” Wiener explains that “we no longer deal with quantities and statements which concern a specific, real universe as a whole but ask instead questions which may find their answers in a large number of similar universes.” Satire also deals with a

46. Gaskell, Cranford (above, n. 1), p. 89.
47. Ibid., p. 155.
“specific, real universe” that it wishes to mock, particular (if usually fictionally coded) types of people or events that are being critiqued. Realism, on the other hand, has a more complex relationship with what is being represented: even while it claims to represent a single “real,” it always hedges those claims, gesturing toward “a large number of similar universes.”

While realism may extrapolate from materiality to information, it does so with ambivalence. When Mary and Matty go through Matty’s parents’ courting letters, Mary’s description reads like an epithet for the novel itself: “here was in them a vivid and intense sense of the present time, which seemed so strong and full, as if it could never pass away, and as if the warm, living hearts that so expressed themselves could never die, and be as nothing to the sunny earth.”50 Realism hopes to accomplish this “vivid and intense sense of the present time [that will] never pass away.” But in hoping for this, it also recapitulates the disconnect Hansen describes between materiality and representation: the “threshold’ of representation itself.”51 Like the gap between “warm, living hearts” that expressed themselves and the “nothing” that they now are, representation will always be a kind of nothing to the bodies and lives that it describes. This is particularly problematic for realism, what Tom Lloyd has called the “radical uncertainty at the heart of realism,” for this is the genre that tries hardest to erase or elide that gap.52 This essential problem at the core of realism remains at the core of posthumanism as well. These attempts to replicate the human are both fraught with a sense of their own failure: namely, that in the end we may have only discourse, only information. Even when the text or technology has its own material presence, the bodies it represents may feel distant, removed.53

Yet the material body persists, even in the face of potential failure, to assert itself through the text, through information. By way of an attempt to explain why she (and so many other Cranfordians) never married, Matty describes a practice of her childhood: “My

53. Some critics argue that because this view is overly focused on discourse, it causes the material to disappear. For example, Mark B. N. Hansen argues that new media allow for different categories of identity because bodies are constituted in new ways. See Hansen, “Digitizing the Racialized Body or The Politics of Universal Address,” Sub-Stance: A Review of Theory and Literary Criticism 33:2 (2004): 107–133.
father once made us . . . keep a diary in two columns; on one side we were to put down in the morning what we thought would be the course and events of the coming day, and at night we were to put down on the other side what really had happened.” She uses this example as a way to show how difficult it can be to predict the future, to adjust “to the contingencies of the outer environment,” as Wiener puts it. Any attempt to replicate the human—the predicted or the actual—becomes at once perfectly accurate and inevitably flawed. Matty comments that the diary method “would be [for] some people rather a bad way of telling their lives,” presumably because the reality would never measure up to the expectation. On the other hand, the novel’s recounting of this method absolutely does get to something resolutely human and embodied—from Matty’s tear, which drops upon the narrator’s hand, to the reader’s heartwrenched response that Matty’s life has been “so very different to what [she] expected.”

Realism teaches us always to search for the body within information, the material form that it reminds us is present, even during abstraction. Reading the realist novel is a practice of both eliding materiality (as when Matty’s garters become humility) and also equally a practice of re-inscribing the material (as when we see that Matty’s life is much more than a tally of columns). This complex process, perhaps an early example of Hayles’s intermediation, is a textual technique that integrally shapes the emergence of machine life and our interpretation of it. Wiener’s history of cybernetics emphasizes machines that use information, which he defines as “the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it.” Wiener’s definition of information, however, is inherently material, involving the senses and other forms of feedback. It is the action of bodies on a material world, and the effects of that material world on the body, mediated through the discursive attempt to translate that action into information.

The attempt to mediate materiality and information is recorded by the reader of the realist novel, measured and universalized in early cybernetics, and debated in contemporary posthumanism. Matty’s diary, and her retelling of it, teach us, however, that translating embodied experience into information provokes a felt response in the reader, one that is inescapably embodied yet created in discourse. Realism teaches us to elide the materiality of the page in favor of the materiality of our own embodied responses—to connect

the body with the information. That many critics find the posthuman response to be opposite—that is, information without a body—is only a reversal, however, of the terms set up by the novel in the first place. The terms remain essentially the same, but the underlying question is intractable. Seeing how realism trained us to conflate, and separate, information and materiality prepares us to be better, more self-aware posthuman readers, coding bodies that are never just information.