Dear Reader,

We are watching you:

I have often observed that when people are interested in a discourse, the movements of their hands or legs are roughly two in every minute. When they are bored this number may be multiplied by four, or, at moments of excessive ennui, five. It gave me real pleasure to perceive that you were even absorbed in my paper. Your movements have averaged only one in a minute.

Francis Galton

University of Alberta

Posthumanous Victorians: Francis Galton's Eugenics and *Fin de Siècle* Science Fictions

by

Robin Diane Durnford

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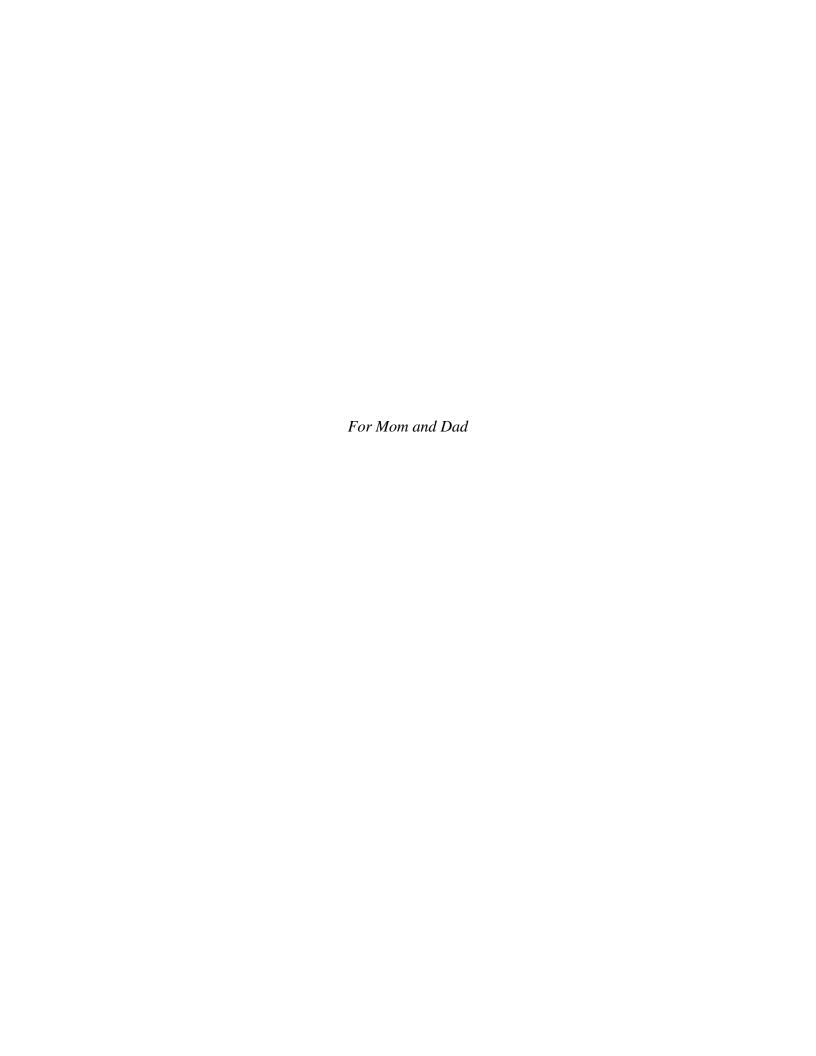
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English

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For Mom and Dad

ABSTRACT

Francis Galton is a Victorian cyborg. I stalk him in his move from nineteenth-century eugenicist to the computerized construct of my twenty-first-century blinking screen. Using a combination of storytelling and argument—in order to maintain a constant critical engagement with my own knowledge production—I bring the past together with the present in a historical cultural study that traces an unlikely pattern of inheritance from eugenics to the posthuman. Thus, *Posthumanous Victorians* contextualizes posthuman cultural theory while showing how surprisingly prescient the now 'debunct' science of eugenics actually was.

Galton's eugenics and the "posthuman," the latter of which N. Katharine Hayles describes as a "view" privileging "informational pattern over material instantiation," are connected in three ways: first, theories of both eugenics and the posthuman focus on cleansing the subject of the body by turning the body into information; second, both theories promote the externalization of private mental processes for the purposes of surveillance; and third, both are utopian attempts at achieving immortality through virtuality.

The first half of my study investigates the proto-posthuman pattern of Galton's career as a eugenic polymath. Chapter One shows how his early travel memoirs and scientific researches lay the foundation for the production of posthuman subjects. Chapter Two follows these subjects as they emerge from his eugenics theory—for which he eventually became famous (and infamous)—as a response to his cousin Charles Darwin's evolutionism. The second half of my

study applies this posthuman theory of Galton's eugenics to literary works. Chapter Three shows how Galton's posthuman eugenics gained momentum within and even helped shape *fin-de-siècle* science fiction, especially H.G. Wells' *The First Men in the Moon* and Nunsowe Green's *A Thousand Years Hence*. Chapter Four shows how the emerging genre of science fiction was also having an important influence on Galton.

I conclude it is time for us to accept the posthumans of the past so we can more easily recognize the eugenic impulses coded in our technoscientific future.

ACKNOWLEDGMENTS

Galton, reflecting back on his life, wrote in his *Memories*, "It has always been my unwholesome way of work to brood much at irregular times" (119). Throughout this head-scratching process, I have persevered only by thinking and hoping that this may be the only mental quality he and I have in common.

Thanks first to my supervisor, Dr. Christine Wiesenthal, for setting high standards and for seeing me through. Thanks also to my first and second readers, Dr. Eddy Kent and Dr. Harvey Quamen, for their support and feedback in the final stages.

Thanks to so many former graduate students at the U of A for their thoughtful company, especially after my father died, but these names come first to mind: Tram Nguyen, Renee Ward, Nancy Van Styvendale, and Misha Monder.

Thanks to my family in Newfoundland for their loving encouragement during tough times: Aunt Diane and Uncle Rob, Ryan and Megan, and of course, Mom.

Thanks especially to three people who believed in my academic work even when I did not: Paulomi Chakraborty from the start, Brian Gibson through the bumpy middle, and Nathan Elliott at the end. Their passionate advice, support, cajoling, suggestions, ramblings, digressions, edits, cheerleading, love, good sense, and good-sized brains are written into every line of this dissertation.

Fittingly enough, this dissertation would not have been possible without two generations of Sam Durnfords. Thanks to my late Dad, for being such a lovely human's human, and to my son, a human-to-be when I wrote the bulk of

Posthumanous Victorians. He picked up where his Poppy left off seven years

before, poking and prodding in those last days and hours until his mother's work

was finally (finally!) complete.

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STALKING THE VICTORIAN CYBORG

Galton wrote to Darwin on December 24, 1869 that the appearance of the Origin of Species *had formed a real crisis in his life and freed him from his old superstition as if he had been roused from a nightmare. For some of us Galton's new calculus acted in precisely the same manner; it enabled us to reach real knowledge—"to submit phenomena to measurement and number"—in many branches of inquiry where opinion only had hitherto held sway.*
Karl Pearson, Vol. II, 357

The posthuman appears when computation rather than possessive individualism is taken as the ground of being.
N. Katherine Hayles

First, an invention. It is Hyde Park, London, in the year 1884. Sir Francis Galton, F.R.S., child prodigy, explorer, geographer, eugenicist, and cousin of Charles Darwin, is sitting on a park bench playing with his pricker (which he refers to formally as his "pocket registrator"). Several Long Tail Tits are digging in the trees for insects; women in back-shelf bustles and bonnets swing their colourful umbrellas and admire the horses on Rotten Row. Each time a cluster of ringlets and blushes whirls past, Galton sneaks a hand into his trouser pocket and pricks. A black swan glides down the Serpentine. Another prick. His mind wanders back to 1851. He is under the glass pavilion of the Crystal Palace counting the leaves on the elms and the feathers on sparrows. He feels as if he is in a great alien airship about to lift him to utopia. A ribbon flutters, and another quick prick.

Soon he is back at the International Health Exhibition in South Kensington. He is standing at the entrance of a long corridor fenced off with lattice work and handing out leaflets advertising, "Anthropometric Laboratory: For the measurement in various ways of Human Faculty and Form." He nods as a

pretty lady pays four pence to enter his science-fictional exhibit. One more prick for the day. Then he returns to his desk, pulls a neatly folded slip of dotted paper, in the shape of a cross, from his pocket, opens up a ruled notebook and begins recording the pricks under the headings "attractive," "repellant," and "indifferent." He rubs his hands together. "My 'Beauty Map of the British Isles' is almost complete," he mutters, "and it seems London has many more beautiful women than Aberdeen!"

Just then he notices a strange woman waiting in the gallery outside the gate. She is a hatless creature in tight trousers, as androgynous as the Martians in *A Honeymoon in Space*, a scientific romance he has been reading on the sly. "May I help you?" he asks as he scratches his mutton-chops.

"Yes," I say eagerly. "I have come from the future for you to measure me and turn my flesh to data. Mr. Galton, I have been following your methods, and I would like to become posthuman."

"But it appears," says Galton, staring at the glow of my cellphone, "that you already are."

And then he pricks again.

I start with this story—a partial-invention—to underscore the play of realism and fantasy involved in stalking the Victorian cyborg. I use my imagination here and throughout this study to bring the past together with the present in order to studiously and strategically trace the unlikely pattern of inheritance from Galton's Victorian eugenics to the concept of the "posthuman," a

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twentieth-and twenty-first century subject that N. Katherine Hayles has described, suggestively rather than prescriptively, as a "view" that "privileges informational pattern over material instantiation" (2) and that "configures human being so that it can be seamlessly articulated with intelligent machines" (3); and who, like Donna Haraway's cyborg, functions as "an amalgam, a collection of heterogeneous components, a material-informational entity whose boundaries undergo continuous construction and reconstruction" (3).[1] Throughout *Posthumanous Victorians*, I act as a sort of cultural geneticist, searching for posthuman DNA in the Galtonian utopias of selective human breeding that at the time excited, but which now retrospectively haunts, the late nineteenth century. I use the term 'geneticist' playfully here to highlight my interest in the oft-recessive links between past, present, and future.

Throughout my historial cultural study of the eugenic posthuman, I draw on recent theories of *posthuman*ism rather than posthuman*ism*. As Cary Wolfe states on his web site, "the term has not just different but opposed connotations and implications, depending on who deploys it."[2] Posthuman*ism* now comprises an emerging field called the "posthumanities."[3] To avoid confusion, wherever possible I drop the suffix, the more abstract and philosophical -ism, and instead

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[1] This study will be focusing on these traits of Hayles' "posthuman," although the other (related) characteristics do apply, such as her description of the posthuman as a "view" that "considers consciousness . . . as an epiphenomenon" and that "thinks of the body as the original prostheses" (2-3). As Hayles argues, "in the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals" (3).

[2] See www.carywolfe.com/post_about.html

[3] Ideas for the new 'field' are largely coming from the books published in Wolfe's Posthumanities series for The University of Minnesota Press, including Haraway's *How Species Meet* (2007), Michael Serres's *The Parasite* (2007), Nicole Shukin's *Animal Capital* (2009), and his own *What is Posthumanism?* (2009).

use the more culturally identifiable and concrete noun, as in the science fictional posthuman or theories of the posthuman, throughout *Posthumanous Victorians*. I stubbornly insist, however, on retaining the moniker, rather than switching to the trendy "transhumanism"[4] or Donna Haraway's neologism, "technohumanism,"[5] because first and foremost, Hayles's conception of "the disembodied posthuman" in her seminal 1999 study, *How We Became Posthuman*, recharged and lit up my once blinkered and waning dissertation when, after reading her monograph, I began to see connections between Galton's eugenics and the posthuman fantasy of virtual reality and its teleological abstractions. The posthumanists she criticizes in that work, such as Hans Moravec,[6] seem Galton's ideological kin, separated only by accidents of birth and history. Daniel Dinello sums up their techno-transcendant ideology vividly, if a little stridently, in the following passage from his book *Technophobia!: Science Fiction Visions of Posthuman Technology* (2006):

> Techno-heaven awaits you. You will be resurrected into posthuman immortality when you discard your body, digitize your mind, and

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[4] According to the Oxford philosopher and self-proclaimed 'transhumanist' Nick Bostrom, "the transhumanist philosophy is a positive alternative to [the] ban-the-new approach to coping with a changing world… Transhumanists view technological progress as a joint human effort to invent new tools that we can use to reshape the human condition and overcome our biological limitations, making it possible for those who so want to become 'post-humans'. Whether the tools are 'natural' or 'unnatural' is entirely irrelevant" (www.nickbostrom.com/old/transhumanism.html). According to Bostrom, the enhanced human subject, and in particular its human condition, is at the centre of the 'transhumanist' project; for example, only some transhumanists wish to escape their humanity altogether and become 'posthumans'.

[5] Haraway coins this term in *When Species Meet* (8).

[6] Hayles opens *How We Became Posthuman* with an anecdote about reading Moravec's *Mind Children: The Future of Robot and Human Intelligence* with pleasure until coming across a nightmarish passage about humans' downloading their consciousness into a computer. The horrific possibilities of this gesture seem to have partly inspired her book. Moravec, however, might also be joined by a large cast of characters, some of whom she mentions in her study, including Marvin Minsky, Vernor Vinge, Gregory Stock, the notorious Ray Kurzweil, and Bostrom. For more, see *Technophobia!*

download your identity into the artificial brain of a computer. Cyber-existing in virtual reality, you will live forever in a perfect simulation of divine bliss. This techno-heaven is envisioned by a cult of techno-priests—scientists and their apostles—who profess a religious faith that the god Technology will eliminate the pain and suffering of humans by *eliminating humans*. These techno-utopians fervently believe that technological progress will lead to perfection and immortality for the posthuman, cyborg descendants of a flawed, inevitably extinct humanity. (1; my italics)

Furthermore, the term "posthuman" most accurately reflects such a techno-utopian project in as much as these Galtonian futurists see the present day human as *imprisoned by*, rather than *in possession of* (as the liberal humanists believe), his or her own flesh, including the fleshy brain. As the authors of *The Future of Flesh* (2009) state about our own proto-posthuman moment, "flesh is increasingly relegated to the status of unwanted materiality that can be pushed aside while the center of human identity is located in the mind, the storehouse of information (knowledge and memories)" (5). In this wordview, the human subject, a construction or conjunction of the old Cartesian mind-body dualism or dialectic, will give way to an entirely new form of subjectivity, a post- or after-human (rather than an enhanced 'trans' or 'over' human) completely absolved of the body and any influence it might have on subjectivity, for which Raymond Kurzweil's Technological Singularity is the best example.[7]

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[7] I use the term "the body" throughout this study, as per Hayles, to refer to individualized, material human bodies in general. I also use "flesh" somewhat interchangeably with "the body" although the emphasis in the former term is on the undifferentiated amorphous mass of materiality that sits rather messily on our bones rather than on the material boundaries of cerebral subjects. The distinction made between "the body," as more abstract and generalizable, and "flesh," as smelly, bulky, and plastic materiality, in *The Future of Flesh* (2009) is useful. I share the authors' belief, in fact, that it is "flesh" rather than "the body," which is more at stake in posthuman times (4). "It is *flesh*," they write, "that is subject to increased control either in the laboratory or in the marketplace and is caught up in processes of modification that seek to master and profit from it" (4). Or, as I would argue, downplay its significance or get rid of it altogether.

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Wolfe asserts in his book, *What is Posthumanism?* (2010), however, that

the triumphantly disembodied posthuman—whom Hayles, other cultural critics,

and a host of cyberpunk writers,[8] articulate and engage—is not posthuman at all

but merely an intensified version of the human; in other words, a 'transhuman'—

the term he insists on applying to Hayles's work. Indeed, he argues that the

'human', like the posthuman, has only ever been achieved by, in his words,

"escaping or repressing not just its animal origins in nature, the biological, and the

evolutionary, but more generally by transcending the bonds of materiality and

embodiment altogether" (xv).[9] By contrast, his (more authentic?) sense of

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[8] As the cyberpunk author Bruce Sterling has stated on his *Wired* blog, "the posthuman is quite an old sci-fi concept now" (www.wired.com.beyond_the_beyond/2007/12/twenty-first-ce/. Dec. 24, 2007).

[9] Indeed, according to Erin Manning, in her book, *The Politics of Touch* (2006), "we have always been posthuman" (157) because, she argues, even "to touch is to become posthuman" (156). I have some sympathy for these attempts, such as Bruno Latour's *We Have Never Been Modern* (1991), to collapse the clichéd conscriptions of progressive periodization. As will soon be clear from my introduction, challenging the strict temporal boundaries of new historicism is part of the point of this 'posthumanous' project. I would point out, though, that these claims cease to be useful when the complex yet too often trendy, and so inscrutable because not scrutinized, cultural studies vocabulary (which itself is always on the verge of or mired in cliché) becomes too vague altogether. Some critics' overly broad metaphorical use of the term 'prosthetic', as but one example, is not only unspecific and inaccurate but potentially offensive to those it is presumably trying to protect, defend, and include in the discourse. For instance, I understand Manning's point when she writes that "touch is a *prosthetic* gesture" (155; my italics), but I question her language. As the daughter and sister of prosthetists, I cannot help, even while seeing its metaphorical possibilities, wanting to defend—*against* deconstruction and *against* postmodernism's hyper-realism—the concreteness of the prosthetic object. Furthermore, as the granddaughter of an amputee, I cannot help but think that some amputees would take issue with, and see as naïve, the implication that we are all amputees ("touch is a prosthetic gesture"), no matter how well-meaning these rhetorical gestures might be. Those who feel bereft of a physical part of themselves, in a world still constructed for 'able bodies', not because of any nostalgia for wholeness, but because they must grieve that specific part that has been lost, that used to be there and that is no longer there, might take issue with the utopian idea that, as Haraway put it in her discussion of the cyborg, prosthetic couplings are pleasurable (see also Lev Manovich's idea of the "cognitive prosthesis," which I myself am guilty of using in Chapter Two). In this case, as in others, the metaphor has moved too far from its concrete source, from its material and historical specifity. This is true, I would argue, even of Manning's ahistorical use of the term "posthuman" in *The Politics of Touch* and of Wolfe's generalized sense of the "human," at least in *What is Posthuman?*. This is why Jay Clayton's more careful, deeply attuned, although no less experimental and refreshing, historical cultural studies methodology, is my model here. As a

posthuman*ism* is able to use the prefix 'post' rather than 'trans', as well as the

'ism',[10] because "posthumanism in my sense isn't posthuman at all—in the sense

of being 'after' our embodiment has been transcended—but is only posthuman*ist*,

in the sense that it opposes the fantasies of disembodiment and autonomy,

inherited from humanism itself, that Hayles rightly criticizes" (xv). Wolfe's

posthumanism is a form of resolutely, and at times even defensively, non-

humanist 'animal studies' philosophically grounded in Jacques Derrida's later

writings,[11] in Niklas Luhmann's systems theory,[12] and in Humberto Maturana

and Francisco Varela's concept of "autopoeisis."[13] Wolfe's posthumanism, and

that of the cultural critics he edits and publishes in The University of Minnesota's

Posthumanities series, seeks a "thematics" for "the decentering of the human in

relation to either evolutionary, ecological, and technological coordinates," but

also, even more importantly, considers "*how* thinking confronts that thematics,

what thought has to become in the face of those challenges" (*What is*

Posthumanism? xvi). As he sees it, such a new posthumanities could present—

after more than a half-century of Marxist, poststructuralist, postcolonial, gender

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Victorianist, he takes historical specificity—the discontinuities—seriously while recognizing that there may be cultural currents—the continuities—that run, echo, flicker, and connect through time.

[10] These Humpty Dumpty verbal gymnastics (see the opening of Tony Davies book on *Humanism*) bring me to Ihab Assan's oft-quoted 1977 presaging of the posthuman: "We need first to understand that the human form—including human desire and all its external representations—may be changing radically, and thus may be coming to an end as humanism transforms itself into something that *we must helplessly call posthuman*" (qtd. Hayles 1; my italics). How helpless we are!

[11] See Derrida's *The Animal That Therefore I am*. Trans. David Wills. New York: Fordham UP, 2008.

[12] See Luhmann's *Observations on Modernity*. Trans. William Whobrey. Stanford: Stanford UP, 1998; also, *Social Systems*. Trans. John Bednarz Jr. with Dick Baecker. Stanford: Stanford UP, 1995.

[13] See Maturana and Varela's *The Tree of Knowledge: The Biological Roots of Human Understanding*. Trans. Roberty Paolucci. Boston: Shambhala Press, 1992.

and feminist critiques of humanism—the final challenge to humanism's

oppressive anthropomorphism and all of the dominations that flow from its

hierarchical Edenic core.

Wolfe's posthumanism follows cultural theory's current suspicion of

humanism through to its logical conclusion and presents the question of whether a

truly non-human-centred ethical philosophy, and politics, can emerge (rather

teleologically?) from the ruins of enlightenment humanism—from the

'constructed' carcasses of its human subjects. It is a breathtakingly ambitious and

even admirable project, one that Wolfe believes, given recent developments in

scientific research on animals,[14] is possible.[15] According to Wolfe, Hayles's

project, on the other hand, although important, is less radical because it merely

opposes a posthuman who is, when 'stripped down', all too easily revealed as

human. His sense of posthumanism "does not partake of the fantasy of the

posthuman described by N. Katharine Hayles, which imagines a triumphant

transcendence of embodiment" but instead "requires us to attend to that thing

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[14] His reliance on "developments in cognitive science, ethology, and other fields over the past twenty years" to make his case that "there is no longer any good reason to take it for granted that the theoretical, ethical, and political question of the subject is automatically coterminous with the species distinction between *Homo sapiens* and everything else" presents a real problem for his argument, however, because of, as this dissertation illustrates, the intellectually and ideologically troubled history of these sciences, especially cognitive science as applied to both 'humans' and 'animals' (*Animal Rites* 1).

[15] Wolfe opens his book *Animal Rites* with a statement that he thinks "might seem rather rash or even quaintly lunatic fringe to most [fuddy duddy?] scholars and critics in the humanities and social sciences" who "remain humanists to the core, even as we claim for our work an epistemological break with humanism itself" (1): "I want to begin by suggesting that much of what we call cultural studies situates itself squarely, if only implicitly, on what looks to me more and more like a fundamental repression that underlies most ethical and political discourse: repressing the question of nonhuman subjectivity, taking it for granted that the subject is always already human. This means, to put a finer point on it, that debates in the humanities and social sciences between well-intentioned critics of racism, (hetero)sexism, classism, and all other –isms that are the stock in trade of cultural studies almost always remain locked within an unexamined framework of *speciesism*. This framework, like its cognates, involves systematic discrimination against an other based solely on a generic characteristic—in this case, species" (1).

called 'the human' with *greater* specificity, *greater* attention to its embodiment, embeddedness, and materiality, and how these in turn shape and are shaped by consciousness, mind, and so on" (120).[16]

Thus, given the contested state of the posthumanist field at this historical moment, I have reluctantly conceded my use of the –ism in order to distinguish my posthuman from Wolfe's posthumanism, and in order to associate my science fictional Victorians with the work of Hayles, the Galtonian futurists (otherwise known as the Silicon Valley elite, including Ray Kurzweil and Google co-founder Larry Page), and the cyberpunks. However, before I present my own very human contribution—some much-needed historical cultural context—to the critical conversation, I must register a couple of critical reservations/observations about Wolfe's arguments which bear on those presented here.

First, Wolfe's engagment with Hayles's posthuman in his book, *What is Posthumanism?*, is too brief and dismissive,[17] mostly because he is eager to change the conversation from the questions she raises about the relationship between technology and materiality to the 'question of the animal'. The problem seems one of urgency. Wolfe sees the 'animal question' as a larger and more pressing ethical concern than Hayles's "fantasy of the posthuman" of which he

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[16] Once again, though, Wolfe's emphasis on cognition—in light of my arguments in *Posthumanous Victorians*—seems troubling even if he wants to pay "*proper attention . . .* to the material, embodied, and evolutionary nature of intelligence and cognition" (*What is Posthumanism?* 120; my italics). Are not terms and concepts such as "intelligence" and "cognition"—like "childhood" and "homosexuality" but even moreso—the ultimate ontological production of enlightened humanist thinking? Is this not the problem with cognitive science as applied to both 'humans' and animals'? It would seem necessary that a Posthumanities such as Wolfe calls for would have to do away with such concepts altogether rather than rely on them, even tentatively, as support for a new non-humanist epistemology and ethics.

[17] Neil Badmington's *Posthumanism* (2000) and Elaine Graham's *Representations of the Post/human: Monsters, Aliens and Others in Popular Culture* (2002) receive even less attention.

"does not partake" (120). Furthermore, Wolfe relies on a reductive and vague

notion of 'humanism'—a straw human, if you will—in order to challenge

Hayles's claim to the posthuman and to position his own theories as exclusively

thinking beyond humanism, or, as he states, "gesturing toward a kind of radical

outside" (*What is Posthumanism?* 285). Yet, as Tony Davies forcefully

demonstrates:

> Humanism is a word with a very complex history and an unusually wide
> range of possible meanings and contexts… The seven distinct sub-
> definitions of humanism rather conservatively offered by the *Oxford*
> *English Dictionary* in truth represents only a fraction of the senses and
> contexts in which the word has been used, and a drastic simplication of
> those… it carries, even in the most neutrally descriptive contexts,
> powerful connotations, positive and negative, of ideological allegiance, its
> very imprecision making it all the more serviceable as a shibboleth of
> approval and deprecation. (2-3)

Wolfe's vague sense of humanism as a fantasy of "disembodiment and

autonomy" (*What is Posthumanism?* xv) ignores, despite his theoretical

application of Derrida and deconstruction, the impossibility of being 'post' any

such slippery concept.

Hayles, on the other hand, is more alive to the importance of historical

specificity and so defines her 'human' and 'humanism' more carefully, perhaps

too much so as my historical cultural study, to use Jay Clayton's term of redress

for the "absence of history in U.S. cultural studies" (16), will imply.[18] She makes

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[18] Clayton specifically calls for new historical cultural studies in *Charles Dickens in Cyberspace*
(see his discussion on pp. 16-17) inspired at least partly by the nineteenth-century critical work of
Mary Poovey and Deborah Nord. These new historical cultural studies, then, would be based on
already-existing (historical) critical models that, according to Clayton, deserve to have more
influence in the field of cultural studies. As he says, "making historical connections is crucial to
the next stage of research on contemporary culture" (17). *Posthumanous Victorians* is grounded in
just such methodology in confronting, rather than neglecting, "the way in which earlier cultural

clear throughout *How We Became Posthuman* that her 'posthuman' exists in

relation to a very particular, historically constructed human; namely, the liberal

humanist subject (rather than, say, the 'Renaissance human').[19] The liberal human

arrives in the nineteenth century (when Galton's posthuman also appears in

response) and begins its decline in the first half of the twentieth, wandering

zombie-like through that century's final decades, and stumbling headlong into the

new. According to Davies (and Hayles), the defining characteristics of this

historically particular variation on the human is its individualistic, property-

owning (as Hayles points out, the body, for the liberal human, does not dissolve

as it does for Galton, but is its ultimate possession), self-defining, and I would

add, self-actualizing, identity.[20] Hayles's posthuman is attentively compared and

contrasted with the liberal humanist subject:

> I understand human and posthuman to be historically specific
> constructions that emerge from different configurations of embodiment,
> technology, and culture. My reference point for the human is the tradition
> of liberal humanism; the posthuman appears when computation rather than
> possessive individualism is taken as the ground of being, a move that
> allows the posthuman to be seamlessly articulated with intelligent
> machine. (33)

Hayles also anticipates Wolfe's critique—that her posthuman often

resembles the human—and answers it.[21] She concedes throughout *How We*

Became Posthuman that even as "the posthuman deconstructs the liberal humanist

subject" (5), it also "shares with its predecessor an emphasis on cognition rather

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formations are sedimented in today's latest fashion" (17). The earlier cultural formation is
Galton's eugenics. The latest fashion in posthuman thought.

[19] See Tony Davies' *Humanism*, p. 93.

[20] This is the liberal human of John Stuart Mill, Samuel Smiles, and Thomas Carlyle. For more,
see Chapter Two ; see also Tony Davies *Humanism*, p. 41.

[21] Chapter Four of Hayles's *How We Became Posthuman*, entitled "Liberal Subjectivity Imperiled:
Norbert Wiener and Cybernetic Anxiety," addresses the issue.

than embodiment" (5). She is subtle in her analysis as she explains her intention to trace the "continuities and discontinuities between a 'natural' self and a cybernetic posthuman" (5), yet emphasizing that this historical moment does bring "something new," as she outlines above. For Hayles, it is important to remember that "the 'human' and 'posthuman' coexist in shifting configurations that vary with historically specific contexts" (6). Thus, in her work, the human seeks ontological disembodiment whereas the posthuman's disembodiment is informational (and this is where Galton is truly a Victorian proto-posthuman rather than, as I argue in Chapter Two, a liberal humanist—although the residue is still there.)

Moreover, Wolfe's insistence in *What is Posthumanism?* that his own posthumanism is wholly opposed to concepts articulated by the posthuman futurists and their critics does not hold up to scrutiny. He seems partially to concede this point in his introduction to the "posthumanities" on his web site when he states that, "we might begin, for example, by observing that accounts of posthumanism tend to gravitate toward one of two poles, even as they often combine elements of both."[22] Later he refers to these two poles as "dry" and "wet" orientations "toward the question of posthumanism" whereby the "dry" critics "emphasize the historical particularity of the phenomenon of posthumanism" and the "wet" critics emphasize "how the 'human' is enmeshed in the larger problem—at once biological, ecological, and ontological—of what

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[22] See www.carywolfe.com/post_about.html.

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Derrida calls 'the living.'"[23] Other, even more precise, binaries can be used to describe the poles of posthumanism, such as "lateral" and "linear," or "horizontal" and "vertical," but none of these quite as vividly explain a central irony wired into these arguments that has up to now been ignored. Indeed, while the Galtonian or posthuman futurists, and their critics, are concerned to describe a posthuman subjectivity that has been dispersed—Hayles's "posthuman collective" (6)—into an etherlike transcendent space of the binary ones and zeroes, or the new 'cloud' computing,[24] Wolfe's theory seeks to do the same thing, except in the opposite direction. His posthumanism, in effect, folds the human into an almost undifferentiated, blob-like world of animal flesh—into "the exteriority and materiality of the trace" (*What is Posthumanism?* 95). In other words, his elemental orientation is towards the earth[25] while posthuman immortalists, such as Kurzweil, map futures onto the air/sky. In the nineteenth-century world exhibited in *Posthumanous Victorians*, these orientations will converge around two scientific cousins—Galton and Darwin[26]—who metonymically 'embody' this

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[23] In this model, *Posthumanous Victorians* provides a "dry" critique of posthumanism. Wolfe also uses positive/negative, utopian/dystopian binaries to articulate the gap between, say, Haraway and Fukuyama.

[24] For an interesting popular discussion/ackowledgment of the actual materiality of cyberspace, or the earthy internet, see Andrew Blum's *Tubes: A Journey to the Center of the Internet* (2012).

[25] Surprisingly, and perhaps ironically, the word "human" was originally connected with the earth rather than the heavens. As Tony Davies points out in his conclusion to *Humanism*: "The root-word is, quite literally, humble (humilius), from the Latin *humus*; hence, *homo*, earth-being, and *humanus*, earthy, human. The contrast, from the outset, is with other earth-creatures (animals, plants), and with another order of beings, the sky-dwellers or gods (*deus/divus*, *divinus*)" (125-126).

[26] It is my contention that Darwin does not get enough credit for inspiring this wing of posthumanism, and for being one of the first 'posthumanists' of this kind. See Chapter Two, but also my conclusion. As such, his work remains undervalued and underused in ethical discourses of this kind; indeed, biology itself seems to be summarily dismissed as a source of *speciesism*. A closer examination of nineteenth-century evolutionary discourse, however, reveals that nothing could be further from the truth. Here is an excerpt of a letter from Darwin to Hooker, written in 1856: "I have just been comparing definitions of species… It is really laughable to see what

air/earth dichotomy, which incidentally also corresponds with an even more traditional iconography of heaven/hell and good/evil (with a twist, course). In this way, as we have learned from Derrida and deconstruction, *posthuman*ism and posthuman*ism* help mutually constitute and support each other as theories for understanding, for better or worse, life after the "human." Wolfe's work, for example, has helped clarify my take on the posthuman almost as a negation. He does the same with Hayles.

Finally, a note on Haraway: this biologist cum social critic herself becomes a useful metonym for the connections between the two posthumanisms just examined. Her influence on Hayles, for example, comes through on almost every page of *How We Became Posthuman*, especially as expressed in the latter's dream of "a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power" (5), which is reminiscent of the former's "utopian dream of the hope for a monstrous world without gender" ("Cyborg Manifesto" 84). Haraway also helped shape Wolfe's thinking by insisting in "The Cyborg Manifesto" that "by the late twentieth century in the United States scientific culture, the boundary between the human and animal is thoroughly breached" (72) and with her contention, in the same essay, that "biology and evolutionary theory over the last two centuries have simultaneously produced modern organisms as objects of knowledge and reduced the line between humans and animals to a faint trace re-etched in ideological

different ideas are prominent in various naturalists' minds, when they speak of 'species'; in some, resemblance seems to go for nothing, and the creation is the reigning idea—in some descent is the key—in some, sterility an unfailing text, with others it is not worth a farthing. It all comes, I believe, from trying to define the undefinable" (*Correspondence* 6: 309).

struggle" (72). Indeed, Wolfe published her book, *When Species Meet*, in The University of Minnesota's Posthumanities series in 2007. What is more, after Haraway, neither Hayles nor Wolfe, nor any other 'cyborg feminists',[27] could dabble in "an anti-science metaphysics, a demonology of technology" (84).[28] And yet, Haraway still does not seem comfortable with the application of the term to her work when she remarks in *When Species Meet*: "I never wanted to be posthuman, or posthumanist, anymore than I wanted to be postfeminist" (17).[29]

Still, her cyborgs and her "companion species" would make intriguing hybrid ferrymen for crossing over, and discussing how we might rupture, the divide between the posthuman and posthumanism. I confess, however, that I use her "cyborg" throughout *Posthumanous Victorians* rebelliously in order to demystify and deromanticize a much valorized figure within postmodern feminism. My discussion of the Galtonian cyborg, especially in Chapter One, is meant to remind us that violence as well as pleasure often constructs this monster. Like Hayles, I also find the term "informatics of domination," or just "informatics"—which Haraway describes as the twentieth-century transition from an "organic, industrial society to a polymorphous information system" (*Simians* 161)—useful for describing Victorian eugenic culture as it rapidly dissolves into bits of data and information.

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[27] These would include, to name just a few, Rosi Braidotti (*Transpositions*), Kim Toffeletti (*Cyborgs and Barbie Dolls: Feminism, Popular Culture and the Posthuman Body*), Allucquére Rosanne Stone (*The War of Desire and Technology at the Close of the Mechanical Age*), and Tiziana Terranova (*Network Culture*).
[28] See Francis Fukuyama's *Our Posthuman Future: Consequences of the Biotechnological Revolution* (2003), for a more reactionary technophobic dystopia.
[29] Indeed, Tony Davies might classify her as a liberal humanist, especially in her "preference for the dialogical and ironic over the solemnly monological" (35).

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I will be spying on late Victorian eugenics and utopia through the microscopic lens of an anachronism, though a most productive one, and will be shamelessly using terms such as 'Victorian posthuman' and 'Victorian cyborg' throughout. My justification for breaking the taboo of anachronism is that much can be learned about the eugenic streak in Victorian culture by seeing it as proto-posthuman; likewise, much can be learned about twenty-first century posthumanism by identifying its eugenic streak. Indeed, linking the past with the future has helped me identify three loose strands of lineage that help explain the connectivity between the eugenic human and the posthuman: first, as described above, both eugenics and posthumanism focus on cleansing the subject of the body by turning the body into information; second, both theories promote the externalization of private mental processes into measurable or quantifiable intelligence or cognition; third, both are ultimately utopian attempts at achieving 'virtual' immortality.

In Haraway's model of dominating informatics, representation becomes simulation, eugenics becomes population control, reproduction becomes replication, sex becomes genetic engineering, and mind becomes artificial intelligence, and these transitions occur after the birth of cybernetics in the middle of the last century. Hayles charges that "seeing the world as an interplay between informational patterns and material objects is a historically specific construction that emerged in the wake of World War II" (14), although she does concede earlier that "cybernetics was born when nineteenth-century control theory joined

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with the nascent theory of information" (8). *Posthumanous Victorians* argues,

however, that these transitions were underway a century earlier. Victorians,

especially under Galton's tutelage, were already turning into "cyborgs," a term I

use throughout this study as a time-travelling metaphor for a new half-body, half-

data Victorian hybrid of a posthuman. Galton's "Beauty Map of the British Isles,"

with its secretive instrument, the pricker, penetrating the body and paper,

uncovers the potential for a new marriage between human and machine, and

between human and data.

I further contend that Galton's printed codes—used to bolster his eugenics

theory—were nearly as important to the advent of the 'new' informatics as

Norbert Wiener's contribution to cybernetics.[30] As my epigraph above suggests,

Karl Pearson, in his almost hyper-textual biography of Galton, his disciplinary

progenitor, claims with only some exaggeration that the eugenicist's quantifying

and statistical methods provided "a new view of the universe" as well as

providing "all branches of science with a *novum organum*, far wider reaching in

its effects than that of Bacon, and as characteristic of the last quarter of the

nineteenth century as the fluxional calculus was of that of the seventeenth"

(Pearson, Vol. II, 357). Curiously, Galton's data-processing eugenics practice also

shares some uncanny resemblances with Wiener's cybernetics. Although I do not

have the scope here to flesh out a full comparison, I do want to highlight a few

intriguing links between Galton's eugenics and cybernetics, even as I

acknowledge the crucial moments of disconnection.

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[30] See Wiener, *Cybernetics; or Control and Communication in the Animal and the Machine*.
Boston: M.I.T. Press, 1961.

Both Galton and Wiener struggled with maintaining the boundaries of the liberal humanist subject even as they constructed theories that called these boundaries into question. Galton coined the term "eugenics" in 1883, after he had developed the theory over many years, starting with the 1865 publication of "Hereditary Talent and Character," and after experimenting with other terms such as "viriculture"[31] and "stirpiculture,"[32] both of which he found unsatisfactory. He explains in a footnote to *Inquiries into Human Faculty* that he derived the term from the Greek, *eugenes*, which means "good in stock, hereditarily endowed with noble qualities" (20). In 1904, he expanded on his definition in a lecture for the Sociological Society, stating confidently that "eugenics is the science which deals with all influences that improve the inborn qualities of a race; also with those that develop them to the utmost advantage " (*Essays in Eugenics* 35). As he developed his theory of eugenics into a science, he increasingly focused on finding ways to fend off the inevitable degeneration and extinction of the human species that he felt his cousin's arguments in the *Origin of Species* (1859) implied. In order to do this, Galton felt that the stock—the biological material but also the inborn essence—of the human race had to be improved. The only way to produce a better stock of humanity was to replace his cousin's theory of origins with a theory of outcomes. If Darwin explained how we got here, Galton would explain where we

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[31] See Galton, "Hereditary Improvement," *Fraser's Magazine* 7 (1873): 116-30.
[32] Probably borrowed from John Humphrey Noyes, founder of the Oneida Community in New York State in 1848. Pearson disputes this, however, blaming H. G. Wells for setting "an absurd myth afoot by saying, 'Eugenics which is really only a new word for the popular American term stirpiculture'" (Vol. 3a, 259). According to Pearson, "Galton himself actually invented the term 'stirpiculture' and changed it advisedly to eugenics" (Vol. 3a, 259). The *Oxford English Dictionary* defines the term as "the production of pure races or stocks by careful breeding" and gives the credit to Noyes.

needed to go and how to get there. After 1865, then, he set about substituting

Darwin's historical arguments in support of evolution by way of natural selection

(which could have positive or negative results for any species), with his

futurological model of controlled evolution through artificial, or human-

designated, selection (which guaranteed positive results for humans). Galton

made sure to eliminate the element of random variation and spontaneous

development that Darwin had introduced to species transmutation by turning his

human subjects—as a breeder would his domesticated strains of dog or cattle—

into repositories of standardized hereditary, or eugenic, information. Thus Galton

uncannily prefigures DNA and the Human Genome Project.

But Galton went further and infused his eugenic science with a missionary

zeal that exceeded mere promotion of domestic breeding practices being applied

to humans or his scheme for "rational reproduction"—a phrase Angelique

Richardson has aptly used to describe the aim of most *fin de siécle* eugenics

prescriptions, including Galton's, which in England did not go much beyond the

polite encouragement of 'fit' couples to marry while requesting 'unfit' pairs

abstain (or be threatened with sterilization and banishment). By the 1880s, Galton

is writing about the "religious significance of the doctrine of evolution" (*Human

Faculty* 247) and discussing man's "moral duty" to further his own evolution

(247). He concludes *Inquiries into Human Faculty* (1883) by insisting that the

time has come for "intelligent and kindly man," who "finds himself in being"

after many long and inscrutable "birth-throes" (245), to be "less diffident than he

is usually instructed to be, and to rise to the conception that he has a considerable

function to perform in the order of events, and that his exertions are needed"

(245). While his later writings on free will[33] would reveal a tension in his work

between the self-regulating and the regulated (or biologically determined) subject,

between the liberal- and the posthuman, he is at this point committed to the

enlightenment agent, at least in the abstract: "It seems to me that he should look

upon himself more as a freeman, with power of shaping the course of future

humanity, and that he should look upon himself less as the subject of a despotic

government" (245).

  Yet Galton's "freeman," presumably modeled on his own authorial

self/persona, could only exert control over evolution by, paradoxically, turning

himself into inflexible facts, or stable accumulations of data, that deconstruct his

own autonomy (as happened with Wiener's cybernetics). For Galton these data

banks were at least initially important because they could be used to determine

whether or not he should allow this new coded self to reproduce, or replicate, its

coded self into another similar self to be coded again (and on and on), eventually

dissolving, or dispersing, the individual into one clone. Thus, as in William

Gibson's *Neuromancer*, data also makes flesh in Galton's world. Galton's eugenic

practice, as he theorizes it in his post-1865 treatises—discovering new statistical

formulas, such as correlation, along the way—involves *information giving birth to*

new, superior, purified, and resembling (or cloned) subjects. His eugenic subjects

are temporal beings that ideally exist as purified pattern, cleansed of the plenitude,

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[33] See Galton, "Free-Will—Observations and Inferences," *Mind* 9 (1884): 406-413.

multivalence, complexity, random variation, and finitude of Darwin's "myth of death" (Beer 6) but also of the palpable pollution wrought by the Industrial Revolution.[34] This data purification process will be my first eugenic link between Galton's Victorian subjects and the posthuman.

I also find some intriguing echoes between cybernetics and eugenics when Hayles pauses—in *How We Became Posthuman*—seemingly not thinking about eugenics, to comment on the purity of the data dream: "It is comforting to think," she writes, "that physical forms can recover their pristine purity by being reconstituted as informational patterns in a multidimensional computer space. A cyberspace body, like a cyberspace landscape, is immune to blight and corruption" (36). Although there are important distinctions between eugenics and cybernetics, the connection here is clear: both eugenics and cybernetics exhibit a fundamental interest in the dissolution (or re-solution?) of the body through data-processing, which both theories in turn figure as a form of cleansing. The translation of the body into data rids the subject of the vulnerability of, and threats to, the body—indeed, can rid the subject of the body altogether. As such, the subject is free from the burdens of what Case in *Neuromancer* refers to as "meat," and which Galton associates with the monstrous materiality of Darwin's theory.

In her argument against this dematerialization of information, Hayles points out that posthumanist supporters of this neo-Cartesian dualism between information and body privilege "pattern over presence" (36). These posthuman

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[34] For a fascinating account of a polluted London, see William Delisle Hay's 1880 novel "The Doom of the Great City," in *British Future Fiction, 1700-1914*. Vol. 8. Ed. I.F. Clarke. London: Pickering & Chatto, 2001.

futurists, such as Kurzweil (*The Age of Intelligent Machines*), Hans Moravec (*Mind Children*), and Marvin Minsky (*Artificial Intelligence*), echo Galton in their view of informational translations of the embodied subject as a transcendent and pseudo-salvational step toward immortality. Indeed, in Kurzweil and Terry Grossman's[35] *Fantastic Voyage: Live Long Enough to Live Forever*, they argue that "immortality is within our grasp" (3) in the next century. In the minds of these twenty-first century posthumanists, "as long as the pattern endures, one has attained a kind of immortality" (Hayles 36).[36] Similarly, Gibson's *Neuromancer*, which was inspired and horrified by these theories (and which has helped construct them, even coining the term "cyberspace"), focuses on the postmodern obsession with cryonics and the immortality of corporations (which lose their CEO 'heads' but not their omnipotent brand). In the novel, Gibson transforms a computer 'consciousness'/matrix named Wintermute into an invincible and pseudo-divine data field which mirrors a God-like supreme being. In *Neuromancer*, rebirth is reconfigured as rebooting.

Here is my second link between Victorian eugenics and posthumanism. I argue that Galton invented eugenics as a Victorian version of just such a

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[35] For more Grossman, see *The Baby Boomers Guide to Living Forever: An Introduction to Immortality Medicine* (2000).

[36] Kurzweil, in particular, is strongly associated with the Silicon Valley elite—a group of rich techno-scientists at the centre of the American empire roughly analagous to the elite scientific circles at the centre of the British empire, of which Galton was an influential member. Google co-founder, Larry Page, for example, helped set up the Singularity University in 2008 and is a generous benefactor to the cause. It is worth speculating that although their language, as per the times, is ostensibly more democratic and inclusive than Galton's they too are invested primarily in creating a 'meritocratic' new-money elite smart enough to transcend biology (Stevens). Indeed, Oliver Krueger has argued that Kurzweil, Moravec, Minsky and others are modern-day Gnostics. See his article, "Gnosis in Cyberspace? Body, Mind, and Progression in Posthumanism." *Journal of Evolution and Technology*. 14.2 (2005): 77-89.

rebooting practice. Like the posthuman futurists (and even Wiener himself), Galton wanted even more immediately to fend off the perceived cosmic threats of chaos and disorder which he found emanating from Darwin's tangled bank, embedded as it now was, thanks to Charles Lyell and William Herschel, in a Godless whirl of infinite space and time. Galton's quest for utopian immortality, throughout his career, starting with "Hereditary Talent and Character" (1865) and ending with his own utopia, *Kantsaywhere* (c. 1910), was similarly motivated by a fear of embodiment, finitude, and death. I conclude that he used his pricker, sextant, and other instruments to 'father' a eugenics—his pseudo-secular Christian salvation narrative—that, ironically, sought to engineer a new techno-Eden through the purification of the species into eugenetic codes. He would then use these codes as a measure for selecting the most promising data-to-be-made-into-flesh for rational reproduction. His selection criteria would have the effect of standardizing the subject-specimens until he was, just as he hoped, transforming mirror images into increasingly 'perfect' (meaning more cognitive and so more beautiful) minds and bodies until self-replication (or cloning) was all that was necessary to attain heaven as a constellation of data-designed subjects.

Thus, Galton's liberal humanism, like that of Wiener in *Cybernetics* (1948), breaks down as his research after the mid-1860s increasingly relies on spreads of data that transgress the embodied boundaries which define and maintain the liberal human (and its conception of the subject as separate from external nature). He translates his "freeman" into an informational construct. Instead of re-inscribing a liberal consciousness in his intelligence research, he

chooses in *Hereditary Genius* for example, to translate into data the deeply

individuated and free-will-dependent auto/biographies of famous British subjects,

taken from "biographical dictionaries, peerages, and similar books of reference"

(46) such as *Men of the Time* (50) and the *Cambridge Calendar* (64). By

quantifying Victorian auto/biographies—which he also relies on, in questionnaire

form, in *English Men of Science*—Galton flattens into graphs, columns, and codes

a key enlightenment form of delineated self-expression.

On the basis of these coded genealogies, Galton argued that he could

determine the inevitable outcome, positive or negative, for the individual, the

family, the nation/race, and the species. By gazing into his statistical ball, he

hoped to gain some measure of knowledge and thus control over the future, and to

find salvation for a doomed species. He was building numerical narratives and

science-fictionally guiding them to an inevitable utopian end. In other words,

Galton wanted evolution to follow a pattern—to be more telic (towards utopia and

immortality) than was clear from Darwin's *Origin*. In this sense, eugenics was a

combination of Christian telos and Godless evolution. Unlike Wiener's goal-

directed or "steering" cybernetic subjects,[37] which were conceived of as feedback-

looped systems relying on a creative dialectic of pattern and randomness, Galton's

imagined eugenic subjects were highly temporal, patterned beings whose only

ontological function was to transmit their superior traits to the next, even more

superior, generation.

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[37] According to the *Oxford English Dictionary*, the etymological root of "cybernetics" is the ancient Greek term for "steersman."

Indeed, Galton's reduction of "natural ability," especially "genius" or intelligence, to a code for transmission, as an inherited trait, would make *Hereditary Genius* a foundational text for those interested in hyping the cause of biological determinism, later influencing the (grey) matter-to-data concepts of IQ and *g*.[38] It was a horrifyingly robotic yet hopeful vision which leaves little wonder as to why Galton, during his meta-introspections, would refer to himself as an automaton. Such a deterministic, nature-trumps-nurture theory, then, presented a challenge—by trading the old (decadent) aristocratic genealogies for the new (austere) 'natural' geneologies—to the Victorian liberal-humanist dream of self-transformation through education and self-improvement (discourses that linger in our posthuman age). It should be pointed out, however, that despite their different takes on the potential of the individual, Galton's determinism[39] and Victorian liberalism shared common cause in using theories of 'giftedness' to justify the rise of certain 'especially hardworking' and 'gifted' bourgeois elites who were after aristocratic wealth and power.

In 1859, the same year Darwin published the *Origin*, Samuel Smiles hoped to empower Victorian persons by proudly proclaiming that "the spirit of self-help is the root of all genuine growth in the individual; and, exhibited in the lives of many, it constitutes the true source of national vigour and strength" (17),

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[38] See Alfred Binet's *L'Etude Experimentale de L'Intelligence* (1903); Arthur Jensen's *The g Factor: The Science of Mental Ability* (1998); Charles Murray and Richard J. Herrnstein's *The Bell Curve: Intelligence and Class Structure in American Life* (1996); J. Philippe Rushton's *Race, Evolution and Behavior: A Life History Perspective* (1995); for a response, see Stephen J. Gould's *The Mismeasure of Man* and *The Bell Curve Wars: Race, Intelligence, and the Future of America*.
[39] Galton coined the phrase "nature and nurture" in *English Men of Science: Their Nature and Nurture* (1874); see also Prospero's description of Caliban in *The Tempest*: "a devil, a born devil, on whose nature/Nurture can never stick . . ." (IV.1.179-180).

although it was already clear, as we can see from the work of Dickens, that such screeds for individual responsibility could easily be used to justify systems of inequality by blaming the poor for not helping themselves. Those who made it, on the other hand, were suddenly imbued with Smiles's special virtues. Ten years after Smiles's tract proved so popular, Galton would be busy tabulating statistical proof that "national vigour and strength" was genealogically inherited rather than individually cultivated. The advantage here was that superiority did not have to be proven through the granting of widescale opportunities such as universal education but could simply be determined by measurements of the mind and the body. In Galton's anthropometric labs, he could *pre*-determine, with head spanners and other tools, an individual's 'natural' status within his pseudo-Platonic social order; even more important, he could determine whether this status should continue reproducing itself within his utopian social order, itself an aspiring *Republic*.

In Galton's model, as opposed to the liberal humanist's, the individual becomes the sum of the family's parts, and by extension the sum of the nation, race, and/or gender. In this view, the chance for individual mutations, quirks, or oddity is lost—and hence individuality itself is lost—in the quest for data patterns. *Hereditary Genius* reads at times like a data translation of another liberal- humanist tract, Thomas Carlyle's *On Heroes, Hero-Worship, and the Heroic in History* (1841), in which the Romantic historian claims that only Great Men, or heroic individuals, can change the course of history. Galton must have been attracted to Carlyle's inspirational claim that "Universal History, the history

of what man has accomplished in this world, is at bottom the History of the Great

Men who have worked here" (1), although he would ultimately bury any such

confidence in individual agency beneath a blind faith in the authority of numerical

projections, which he believed could be used eugenetically to *engineer* Great

Men and to guide Universal history on a course to utopia. Indeed, why rely on the

spirit of one Great Man when you can manufacture thousands from their

eugenetic material and without any East End degenerates sullying the data?

By reducing the knowledge of Great Men to a measurable number, Galton

effectively transforms intelligence into "cognition," a more precisely

technoscientific and posthuman term, as it is more directly related, especially in

the twentieth and twenty-first centuries, with computation and information

processing.[40] The shift occurs at a time when the term "genius" was being

popularly transferred from the arts, where it still retained its old relationship with

"spirit,"[41] to the then differentiating sciences, where it was increasingly associated

with mathematical logic.[42] Darko Suvin's influential description of science fiction

as a form of "cognitive estrangement" (*Metamorphosis* viii) appeals to the more

empirical, more data-driven underpinnings of "cognition" as a 'hard' and

technical term, in order to assign more importance to the marginalized "popular"

genre he was championing.[43]

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[40] According to the *Oxford English Dictionary*, "cognition" derives from the Latin term for "getting to know, acquaintance, notion, knowledge."
[41] Penelope Murray's *Genius: The History of an Idea*. Oxford: Blackwell, 1989; see also Patricia Fara's *Newton: The Making of Genius*. New York: Columbia UP, 2002.
[42] See also Patricia Fara's *Newton: The Making of Genius*. New York: Columbia UP, 2002.
[43] According to Darko Suvin in *Metamorphoses of Science Fiction*, "SF is a developed oxymoron, a realistic irreality, with humanized nonhumans, this-worldly Other Worlds, and so forth. Which

Furthermore, I contend, in my third link between Victorian eugenics and posthumanism, that Galton's translation of human "genius" into data (and cognition) mirrors, and perhaps helps along, especially in his work on criminal anthropology (i.e., fingerprinting), the trend in the pre- and post-war periods for conceiving of intelligence as information, and for information-gathering conducted by the state. Hence, intelligence becomes commonly associated with police and military intelligence and the work of collecting (often through espionage), analyzing, processing, and disseminating secrets from one state or one corporation or institution to another. Within this system, knowledge becomes deeply enmeshed in the disciplining of the Other through state-sanctioned violence (including torture and retaliation), and a means for the exercising of Louis Althusser's repressive state apparatuses and Foucault's institutionalized punishments. The "knowing" individual, or spy, ceases to be mentally liberated but is trapped within the "informatics of domination" (Haraway *Simians* 161).

As Haraway has put it, the twentieth-century move towards intelligence as information amounts to a "*translation of the world into a problem of coding*" (164), a move which, I think, also explains the continuing obsession in the Information Age with intelligence and intelligence rankings.[44] Haraway refers to this process as "a search for a common language in which all instrumental control disappears and all heterogeneity can be submitted to disassembly, reassembly, investment, and exchange" (164). In his anthropometry labs, for example, Galton

means that it is—potentially—the space of a potent *estrangement*, validated by the pathos and prestige of the basic cognitive norms of our times" (viii).
[44] Such as the Intelligent Quotient (IQ) and the Scholastic Aptitude Tests (S.A.T.).

would charge his subjects three or four pence to exchange their heterogeneity for a translation of themselves into cryptic codes, which Galton would then rank—as though they were mini-Cambridge examinations—and data "bank" in order to improve the national *stock(pile)* of intelligence. As Haraway's discussion makes clear, the move from intelligence to information, which Galton helped to direct, has never been benign but can carry with it, if we are not careful, the encrypted codes for a violent dissolution of the body, expressed in its most horrifying and extreme form in the tattooing of numbers onto the bodies of prisoners at Auschwitz and other Nazi concentration camps.[45] Haraway argues:

> Intelligence, in its new guise as information, has now been reduced to the quantifiable element (unit, basis of unit) which allows universal translation, and so unhindered instrumental power (called effective communication). The biggest threat to such power is interruption of communication. Any system breakdown is a function of stress. The fundamentals of this technology can be condensed into the metaphor C[3]1, command-control-communication-intelligence, the military's symbol for its operations theory. (164)

On the opposite front during the Second World War, Alan Turing, who is commonly referred to as one of the fathers of computer science, started his career as a cryptanalyst for the British Government Code and Cypher School where he broke down German ciphers, especially those transmitted on the Nazi "Enigma machine."[46] Turing's code-cracking would eventually lead him to the development of the Turing machine, which Philip K. Dick imagines in his novel, *Do Androids Dream of Electric Sheep?*, as having the ability to decipher the

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[45] For more, see Jane Caplan. Ed. *Written on the Body: The Tattoo in European and American History*. London: Reaktion Books, 2000.
[46] "Enigma machines" were used for the encryption and decryption of secret messages during the Second World War.

difference between a human being and an AI or android.[47] Like a lie detector test, once again it is meant to separate 'lies' from 'truth' by simplistically translating private knowledge into public patterns, and revealing these secrets in order to make use of them. Hence, my third link shows how Galton's data translations, like those in cryptography and cybernetics, make private information public and how his statistics end up being used, especially in his later work on composite photography and fingerprinting, as a form of surveillance and domination.

I use spying, hacking, and information-gathering (through analysis, processing, and dissemination) as another metaphor for my method in *Posthumanous Victorians*. It is a self-reflexive reminder of the state-funded sanction that sits silently behind any institutionally-bound research endeavour (such as this one), and which, if we are not careful, can end up 'revealing' and framing a version of cultural history (which is always necessarily amorphous) for its own self-generating ends. I also use it, as I am "revealing" now, to show my own part in this posthumanist information exchange, and as a way of self-consciously pointing out the limitations of my own "intelligence"—a way of describing the absurd yet inevitable intellectual distance I feel from the historical figure I am meant to understand. It is, in other words, my little test model for research as research resistance—a humble call for intelligence to be more institutionally-resistant, and for the intelligentsia to play and create more with its own models while maintaining its rigour. It is a practice that prominent posthumanists, such as Allucquère Rosanne Stone (*The War of Desire and*

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[47] See also Marvin Minsky and Harry Harrison's novel, *The Turing Option* (1992).

Technology at the Close of the Mechanical Age), have been pursuing, and which

Hayles and Haraway have been advocating, for more than a decade.

But these prosthesis-loving feminist cyborgs have not, for the most part,

confronted the problem of history; they have not explained how to confront

history through posthuman eyes. Suddenly, for example, history has become

digital—a vast archive can be displayed on my screen at the push of a button.

History, too, has lost its body. I no longer have to travel to the British Library to

touch and smell the rare science fiction book—Nunsowe Green's *A Thousand*

Years Hence—which I analyze in Chapter Three, though in the case of Galton's

papers I have done so anyway in order to try to get closer to history, to simulate

some intimacy between me and my subject, and for the trip to London. There is,

of course, much work to be done on the effects of this dissolving of history's

textual body into cyberspace, especially as Google and Amazon develop neo-

Alexandrian libraries, digital incarnations of Borges' library of Babel. Will these

flickering screens, for example, distance us further from the past? But then, even

if we touch a book, a scroll, an artifact, does it envelope us any more in an

authentic experience of history than if we had viewed it through a glowing

window while we sit at home in our pajamas? Has history lost its aura? The smell

of Shakespeare's First Folio, for example, was not there in Shakespeare's day.

Yet my concern here is not with distance but with connection. Indeed, although

my encounters with Galton have been mostly mediated by glowing windows and

Xerox copies, the gods of historical materialism have been calling on me to avoid

the temptation of connection—and to embrace the echoing distance between me and these Victorian artifacts.

My title, *Posthumanous Victorians*, is meant to suggest my only half-serious surrender to that temptation. I contend that, thanks to Galton and others (i.e., Charles Babbage, Ada Lovelace, and James Clerk Maxwell, to name a few), the Victorians survive in the Information Age as posthumanous echoes, virtual shadows, and cyborg spectres. I feel the excitement and anxiety of my own boundary-crossing in stalking the Victorian cyborg because I propose that there are *g*-spots (and age-spots) of connection, along with the palpable separations, between the Victorian period and our own—connections productive of new knowledge about ourselves and the remote Victorians. I am thus heeding Jay Clayton's call in *Charles Dickens in Cyberspace* (2003) for a new practice of historical cultural studies that breaks the institutionalized taboo of "period-bound thinking" (3) that has dominated literary history, and even cultural studies, for decades.

Clayton has seen the cultural legacy of the nineteenth century, in particular, get lost in postmodernism's battle with the Enlightenment, yet he stresses the importance of restoring the links, while being mindful of the gaps, between the two periods. He feels strongly, however, that "no traditional linear history can plausibly link them in terms of influence, causality, or unbroken development" (9). He argues that the "various schemes of periodization . . . actually serve to conceal the existence of any relationship between these two times" (9). According to Clayton, then, "it is necessary to work toward a new

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understanding of cultural parallels in history, one that is as sensitive to disjunction as to recurrence, as careful in delineating gaps, discontinuities, and altered meanings as in making the comparisons that urgently need to be made" (9). Thus, following Clayton's lead and switching metaphors for a moment, I hack into the Victorian period from and *through* the Information Age in order to decipher the "odd parallels between the two times" and expose "conjunctions that share a weird, long-hidden logic" (8), but also with an eye to difference in deference to the Victorian Other.

This study of Galton as the insider/outsider, eugenicist/oddball writer and thinker uses a "bricolage" (15) of exploratory narrative and argumentative techniques—including the personal voice, multiple points of view, argument through indirection, accretion, flashback, climax, denouement, and irony—in order, like Clayton, to draw attention to the constructed nature of my own inquiry (44). By telling stories and "plotting surprises for the reader" (44), as with my introductory invention, I want to avoid constructing the kind of objective and universalizing truth claims that go along with the "totalizing mode[s] of knowledge" with which Clayton takes issue and which postmodernism has thoroughly criticized. Such experimental and performative writing strategies sidestep any "simplistic equation of history with linear schemes and developmental narratives" (16), instead proposing a model for understanding a "discontinuous heterogenous past" (30) while still allowing for "determinate historical knowledge" (30). As Clayton puts it:

> When narrative is understood as inevitably partial, contingent rather than authoritative, it discloses the limits of its own historical practice. It allows

the historian to trace discrete areas of continuity, explore disjunctive sequences, bring to life a particular state of affairs, without pretending to a global perspective that can assess all history within a universal point of view. (44)

My methodology, then, is grounded in an experiment—an experiment with a new historical-cultural studies that "uses narratives in a critical discourse of narratives" (44) and recognizes that "storytelling has performative effects that may work in the service of counterhegemonic goals" (45).

My use of an anachronism in describing a Victorian posthumanism may seem jarring at first, like "Dickens in cyberspace," but the anachronism is meant to challenge a dominant paradigm of Victorian history that has largely ignored the uncanny resemblance between Galton's computations and our own computer, although there have been a few important gestures towards such a recognition, focusing almost exclusively on Galton's invention of composite photography, in Mark Seltzer's *Bodies and Machines*, Charles and Ray Eames' *A Computer Perspective: Background to the Computer Age*, and Marquard and Morra's *The Prosthetic Impulse*. Still fewer Victorian scholars have hyperlinked nineteenth-century information technologies and the Information Age, although Richard Menke's *Telegraphic Realism* (2008), along with a recent article by Alistair Brown and by Herbert Sussman and Gerhard Joseph,[48] have noticed strange and flickering connections, yet their focus is based—which is also somewhat the case for Clayton—on refreshing our readings of novels by canonical figures such as

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[48] See Alistair Brown's "Rereading Posthumanism in *The War of the Worlds* and *Independence Day*" *eSharp* 12: 1-25, and Herbert Sussman and Gerhard Joseph's "Prefiguring the Posthuman: Dickens and Prosthesis." *Victorian Literature and Culture*. 32.2 (2004): 617-628.

Dickens. I would also add to Clayton's statement—that "more than any other writer of the nineteenth century, Dickens would have been fascinated by the internet" (3)—the surmise that Galton would have been more fascinated by the internet than any other scientist of his time. The literary and cultural studies of Galton have focused on the influence of eugenics on Victorian popular culture, particularly New Woman fiction, of which Richardson's *Love and Eugenics* is the best example. Likewise, Peter Morton (*The Biological Imagination*) and Patrick Parrinder have both considered where Galton's *Kantsaywhere* lies in the galaxy of Victorian utopias, and I build on these discussions of Galton and utopia to delve more deeply into Galton's relationship with the posthuman. But none of these cultural studies indicate an awareness of the posthuman shadow that I argue Galton's eugenetics cast on his future and our present.

Galton's biographers, especially Karl Pearson, see Galton as a man ahead of his time. D.W. Forrest subtitled his book on Galton, "the life and work of a Victorian genius," whereas Nicholas Wright Gillham explored his contribution to human genetics. Perhaps Martin Brookes' unsourced, popular account of Galton's life, *Extreme Measures: The Dark Visions and Bright Ideas of Francis Galton* (2004), best highlights Galton's peculiarities, although the polymath's oddities are implied on almost every other page of the more scholarly biographies. Brookes concludes: "As we look forward to the future, and a new technological century of genetics, all the indications suggest that the ghost of this witty, uncompromising, phlegmatic, wayward, and single-minded man will continue to haunt us" (298). While Galton may be encoded in our DNA, I argue that it is Galton's obsession

with data that makes him posthuman. Ironically, however, it is his very whimsy—

his "excursions to the fringes of madness" (xviii)—that allows us to pursue a new

historical cultural studies with counter-hegemonic goals, giving us a "flexible,

multifaceted awareness of how a diverse present relates to an equally various

past" (Clayton 20). Galton's dottiness helps us to see the Victorian period through

those pixelations—to see it as strange, de-centred, and local—and outside the

dominant readings of Victorian history as a stark battle, for example, between

spirituality, liberal essences, and scientific materialism. Galton was a religious

materialist whose scheme for immortality was data processed. Yet Galton's ideas

were not arbitrary or relativist but part of a past that, though not "obvious or

inescapable" (20), is "valid and ethically significant" (19), especially when we

watch, from our privileged vantage point, the events that followed his death in

1911, such as the development of the computer and cyberspace (technologies that

now mediate his own historical identity).

As the Australian playwright and actor, Brian Lipson, illustrates in his

one-man show on Galton, entitled *A Large Attendance in the Antechamber*,[49] the

legacy of the Victorian eugenicist—though stuffed at the ends of dusty London

hallways, widely overshadowed by monumental tributes to his cousin Darwin—

still has a strange posthumanous hold over the present. In the play, Lipson

reincarnates and/or impersonates Galton on a set that is a tiny little box, a

"shrunken version of Galton's study" filled with his prickers and sextants, that

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[49] *A Large Attendance in the Antechamber* premiered in Melbourne in 2000. See Chapter Two for
an explanation of the quote from which this play title comes.

Lipson/Galton can only awkwardly stand up in. Lipson deconstructs the science

of acting, and the acting of science, by staging a "mental wrestling match"

between the actor (Lipson) and his character (Galton), starting the play with an

intriguing monologue:

> However much respect I may be forced to accord the dramatic device, I
> am still a man of science or I am nothing, and science is clarification and
> classification or it is nothing. It would simply be intolerable for me to
> continue in the ill-defined ambiguous situation in which I find myself
> unless somehow it may continuously be brought to your attention that it is
> not I, but an actor mouthing these words . . . Of course it would have
> helped matters if he had not felt the need to adorn himself in this
> ridiculous approximation of Victorian daywear, I make no mention of the
> synthetic pate and whiskers . . .[50]

Within his own dramatic experiment, Lipson finds a self-reflexive literary method

for understanding the past through the quirky insights of a paradoxically obscure

yet eminent Victorian (who himself studied obscurity and eminence) and who was

"swept under the carpet" after his death, especially after World War II, yet is

postmodern enough to help Lipson explore poststructuralist ideas about

performativity (such as the constructedness of performance). As Clayton notes of

such self-conscious literary histories, "attending to this alternative time-

consciousness allows one to recover modes of experience hidden from traditional

history . . . the literary has both cognitive and affective roles to play in the

apprehension of the past" (44). Galton is the perfect figure for Lipson's

experiment precisely because of his eccentricity and the historical paradoxes he

embodies. The contradictions and tensions within Galton's 'character' and

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[50] For a full transcript of the interview between Robyn Williams and Brian Lipson, including
excerpts from *A Large Attendance in the Antechamber*, on Radio National's *The Science Show*,
see http://www.abc.net.au/rn/science/ss/stories/s216074.htm.

work—such as the fact that the man who spent his whole career obsessed with reproducing future generations could not have children himself—defamiliarizes our knowledge about the Victorian period and our own time. By impersonating Galton, Lipson becomes estranged from the 'truth' about art and science, nature and nurture, good and evil, intelligence and IQ, and the role of eugenics as a genocidal reproductive technology (which Galton wanted to transform into a religion).

I argue throughout that by impersonating Galton—through boundary-crossing, storytelling, self-reflexion, and above all, data-processing—we/I/you have become (proto)posthuman. Chapters One and Two develop a posthuman theory of Galton's science, especially his eugenics. I show how Galton's scientific social theories and inventions set up the foundation for the production, reproduction, replication, and cloning of future subjects which Hayles and others have defined as posthuman. I focus on moments in Galton's career that are of posthumanous interest to the present, such as his inventive calculations during his Cambridge days, his coded surveying of the curves of his Hottentot Venus, his utopia-by-numbers dreaming in "Hereditary Talent and Character" and *Hereditary Genius*, his anti-body purification of sex as a form of "rational reproduction" in his eugenics theory, and his role in the development of data-based technologies such as the "telotype," composite photography, and fingerprinting.

In this first half of my study, I also explore, using works such as *English Men of Science* and *Inquiries into Human Faculty and Its Development*, Galton's

translation of history and memory into data accumulations that prefigure cybernetic information storage. Finally, I show how Galton begins the process of fragmenting the unified consciousness of the liberal human as he subjects the concept of free will to introspective scientific investigation, revealing human subjectivity as more automatic and dispersed than had been previously realized. As Galton's career develops throughout the Victorian century and beyond, the outlines of the posthuman begins to emerge from the wastelands of the industrial revolution as he seeks to purify, immortalize, and publicize his new vision for a stable new world of Victorian virtuality.

Chapter Three and Four apply my posthuman theory of Galton's eugenics to literary texts. The two-part structure is meant to reflect the symbiotic relationship between creation and invention, fantasy and form, dreams and logic, storytelling and argument, and science and literature. As Hayles observes, "culture circulates through science no less than science circulates through culture" (21). Even though the spectre of Galton dominates *Posthumanous Victorians* and my readings of some quirky works of Victorian culture, I am also aware that Galton's theories gained momentum within the culture by circulating through popular narratives: "Literary texts," writes Hayles, "play a central role, for they display the passageways that enabled stories coming out of narrowly focused scientific theories to circulate more widely through the body politic" (21). In Galton's case, his futuristic technoscience presented posthuman figurations and data-processed narratives that resonated pitch-perfectly with the vibe of many works in the emerging genre of late Victorian scientific utopias.

Chapter Three focuses on two of these *fin-de-siècle* fictions—one a utopia and one a dystopia—that feature Galton's proto-posthumanism in strikingly contrary roles. Nunsowe's Green's utopia, *A Thousand Years Hence* (1882), imagines a time when Galton's eugenics practice has successfully brought about a more peaceful, purified, and posthuman world—a world constantly on the verge of becoming virtual, where the very existence of material substance itself is under threat. In contrast, H. G. Wells's most obscure and "weird" dystopia, *The First Men in the Moon* (1901), presents a parodic response to the posthuman impulses in utopias such as Green's (Miéville xix). The hyper-rational Selenites of Wells's novel—although they are also produced eugenically and live in a similarly peaceful society—are deeply embodied and even grotesquely distorted, with their superior brains oozing like "wabbling jellies" (Wells *Moon* 183). I chose to examine these two *fin de siècle* science fictions specifically because they best highlight the links I just outlined between Galtonian eugenics and the posthuman. *A Thousand Years Hence* and *The First Men in the Moon* are deeply concerned with eugenics as a means of producing mental improvements that could potentially lead to the post-'human' even though Hayles's language is not yet available to them. Considering these two novels independently, and in comparison with each other, has enriched my understanding of the purifying, externalizing, and immortalizing strategies of Galtonian posthuman ideology, an ideology Green mostly celebrates and Wells satirizes, especially when it comes to the eugenic discourse of intelligence production.

Chapter Four shows how Galton—who published *Hereditary Genius* just two years before Edward Bulwer-Lytton's 1871 publication of *The Coming Race* ushered in a new era of British proto-science fiction—drew on utopian narratives, especially late Victorian utopia and science fiction, in the development of his futuristic science, eventually leading him to blur the lines between science and fiction with two utopian thought experiments, one of which I refer to as his "Martian Fantasy" while the other is his unpublished, half-destroyed novel entitled, *Kantsaywhere*.

Oops. I quickly turn my cellphone off. The light of its screen fades.

Galton is approaching me through the narrow tunnel of his anthropometric lab. He holds a head spanner. He places the contraption—a series of rules connected with wires—on the crown of my head.

"Hmmmm," he mutters as he makes some adjustments. "Hmmmm."

I notice that he smells of sweat, wool, and rose petals.

"You ought to be wearing a hat, young lady. And I have never before seen a woman in trousers. Scandalous!"

Passersby in the South Kensington Museum stare at me through the lattice work, their looks disapproving.

"But I've come from the future," I say nervously.

Galton scribbles some calculations into his record book and scowls at the page.

"Very strange," he says. "Very strange, indeed."

"What is it?"

"I've just noticed that, if what you say is true, and you have come from the future, then I have in my hand some interesting figures. It seems the human skull has not grown in size over the course of two centuries! Of course, you are a woman, but your skull is the approximate size of other Victorian women. There is no comparison to my large skull, naturally. But it would appear that the human species is devolving rather than evolving, just as I predicted. Dear me, there is much work to be done!"

To my surprise, Galton invites me—his specimen—back to 42 Rutland Gate.

"For further examination?" I ask. "For pricks and surveys?"

"For tea," he says.

His wife, Louisa, is out when we arrive, but Galton does not summon his servants. He measures out the tea himself. He takes the temperature of the water as it brews. He times the seeping to the second.

"The perfect cup of tea," I say.

Galton spends the rest of the afternoon recording the facts of my genealogy, asking me peculiar questions about the colour of numbers, taking my picture, and printing my fingers as I tell him about cyberspace. But he refuses to believe there is such a thing.

He pours a bath; I grow nervous. He tells me it is a new experiment—he is designing goggles to be used for reading newspapers underwater.

I clatter my cup onto the saucer and my headspanner falls to the floor. I
realize how I have been observing Galton. He appears to me not as a face but as
tables of information floating before me like a newspaper being read through
underwater goggles.

GALTON'S NATURE:
A PATTERN RECOGNITION

One summer day I passed the afternoon in Bushey Park to see the magnificent spectacle of its avenue of horse-chestnut trees, a mile long, in full flower. As the hours passed by, it occurred to me to try to count the number of spikes of flowers facing the drive on one side of the long avenue—I mean all the spikes that were visible in full sunshine on one side of the road. Accordingly, I fixed upon a tree of average bulk and flower, and drew imaginary lines. . .
Francis Galton, *Hereditary Genius*

It is November 3, 1840. A young, glossy-eyed Francis Galton sits in his

pillowy rooms at New Court, Cambridge, taking in the fire and gazing at the

River Cam. He licks the tip of his pen:

> My Dear Father,
> I should have sent to you yesterday if it had not been that the one that I
> had written was spoilt by an accident in my Gumption-Reviver machine
> which covered it with water. (Pearson Vol. I 144)

Around his head is tied a soggy napkin connected to a large funnel that hovers

over him. Water slowly drips from the funnel onto the napkin, soaking Galton's

hair and shirt. He shivers as his "gyp" enters and refills the funnel as he has done

every fifteen minutes for the last several hours.

"Would you like me to come back, sir, at quarter past two?" yawns the

servant, purple circles rimming his eyes.

Galton checks the clock. It is 2 a.m. "No, that will be all, Harry. I shall just

finish up Boucharlat's Conic Sections and then retire."

Harry nods and closes the door with an echo.

But the young Galton does not leave his desk. He sits in the damp under

the drips of his Gumption-Reviver machine for two more hours.

"I must read for 10 hours today or I will never become Senior Wrangler!" he says with a cough. "I was a child prodigy, for heaven's sake, I knew Latin substantives and multiplications when I was four years old. How could I not become at least a Wrangler?"

A couple of days later, the "gyp" enters Galton's rooms only to find the young student lying under a pile of blankets writing a letter in the air above him:

> My Dear Father:
> The reason why I write in pencil is as I am lying on my back I can't get a pen to write; I have been confined to my bed for some days, rheumatism not *over reading* but will shortly be released. It has put a pro tempore dead stop to Maths. (Pearson, Vol. 1, 145)

Galton sits up and grumbles before the fire. He then stumbles over to his desk and straps on the Gumption-Reviver apparatus. He places the Boucharlat before him and turns a page. He rubs his eyes. He sniffs. He taps his pen.

He throws the Gumption-Reviver funnel against the wall.

"I will never be prepared for the examinations!" he bellows. "Why oh why can't I be a machine?"

The "gyp," who had just then come in with water for the funnel, nods "yessir" and shuts the door with an echo.

Galton never did become a Wrangler. In 1844, Erasmus Darwin's other grandson would leave Cambridge with an ordinary degree in Mathematics. His biographer Brookes observes that, for a former child prodigy, his performance was disappointing and embittering: "His whole experience at Cambridge had been one giant let-down" (50). The competitive university system—with its rigidly

hierarchical outcomes—had ground him down, leading to a breakdown that even his Gumption-Reviver machine could not stop (and likely contributed to): "A mill seemed to be working inside my head," wrote Galton, "I could not banish obsessing ideas; at times I could hardly read a book, and found it painful to even look at a printed page" (Brookes 47). Although Galton had built the Gumption-Reviver machine to overcome the limits of his own body, at Cambridge his body stubbornly refused to capitulate. The system had been too much for even him: "I feel more convinced everyday," he wrote to his father, "that if there is a thing more to be repressed than another it is certainly the system of competition for the satisfaction enjoyed by the gainers is very far from counterbalancing the pain it produces among the others" (Brookes 50).

This chapter examines certain junctures, especially in Galton's early life, such as the one detailed above, that demonstrate the future eugenicist's youthful desire to overcome and eventually dissolve, or re-embody, external nature—i.e., the human body and its unpredictable surrounding environments—in the command-control informatics of numbers, codes, and data, establishing a pattern that strikingly prefigures the posthuman, or rather develops his own version of the Victorian posthuman and virtuality, ultimately foreshadowing developments in our own cybernetic communications culture. At the first juncture, I show how Galton's techno-sexual orientation towards one Hottentot woman in his foundational work of travel literature, *Narrative of an Explorer in Tropical South Africa* (1853), offers intelligence about the posthumanous strategies at play in Galton's diagrammatic and decoding mind—his repression of desire into

cognition. The second juncture involves Galton's oft-forgotten researches in the budding science of meteorology, and his shaping of climate and weather phenomena into controlled patterns of data that might be used to forecast the future and stave off nature's unruly threats. The third juncture involves cracking the codes of Galton's first published article, "The Telotype," published when he was exploring Africa, for the links it makes between Galtonian ideology and the "Victorian internet."[51] The fourth concerns the *aesthetics of generalization* of Galton's composite photography, which uses posthuman techniques to externalize the mind.

As a student of English Literature, and now historical cultural studies, I am asking for trouble when I follow a mathematician through the seminal moments of his statistical career in search of a posthumanous pattern of voyeuristic and salvational dematerialization. Like many of my counterparts, I chose a Humanities career in order to avoid calculating. But, as Bruno Latour teaches us, these anticipated troubles concerning our intellectual deficiencies should not halt but energize the cultural historical researcher to follow the link not clicked (*We are Not Modern* 3); that is, if we stalk our cyborgs properly, we can make careful 'outsider' claims about scientific and mathematical culture that put a spotlight on previously closed systems or, in my case, Victorian black boxes. As Latour has written, it is all the more important to do so—turning the old colonial

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[51] *The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's On-line Pioneers* (1999) is the title of Tom Standage's popular account of the history of the telegraph. See also Richard Menke.

model of the explorer returning from the wilderness on its head—because we know so little about these gated laboratories. They have, in the latter half of the twentieth-century, become "the object of a cult" and hence "too few people have studied them dispassionately" (*Science in Action* 237).

Fittingly, then, I start my troubling adventure in what was known to Victorians as the wilderness—right in the middle of a 'blank spot' on the nineteenth-century colonial map—in 'darkest' southwest Africa. It was here, in what is now Namibia, where Galton began his own form of agonized boundary-crossing between borders, cultures, and peoples, including his life-long practice of data-dissolving the most vital and blood-pumping of adventuring bodies, starting with his own. In Namibia (then, as Galton referred to it, Damaraland and Ovampoland)—where European-style boundaries did not apply but had to be brutally imposed—Galton could test the solidity of his own flesh.

He had travelled before, first as a student to Vienna, Budapest, and Istanbul and later, after his father's death, through Egypt and down the Nile on a minor adventure to Khartoum in what was then known as the "Soudan" or the "country of the Blacks" (Galton *Tropical South Africa* 1). But in 1849, Galton, with the help of his connections at the Royal Geographical Society, set forth on a harrowing expedition to a yet-to-be explored and exploited (by Europeans) region of the continent, replete with copious resources in the form of servants, companions, oxen, wagons, luggage, and scientific instruments, including his beloved sextant, which he taught himself to use on the ocean journey to Cape Town. The grand scientific/hunting journey would put his intellectual mettle and

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physical prowess to the test, a test he would pass, allowing him to claim at the end

of his life—forgetting his experience with the Gumption-Reviver machine at

Cambridge—that he was endowed with an impervious materiality: "It seems I

have received, partly through the Barclay blood" he wrote in his *Memories of My*

Life (1908), "a rather unusual power of enduring physical fatigue without harmful

results, of which there is much evidence when I was young" (11).

In the African bush, Galton's body underwent the predictable hardships.

He suffered deprivation, chased lions, and shot a wide-eyed giraffe, along with

countless zebras and rhinos. He faced down a Hottentot leader known as Jonker

Afrikaner, and eventually, after much imperial romance, made his way to

Ovampoland, which he describes as a sort of African Eden—a purified and

orderly pastoral rather than savage tropics where the "damsels" were fertile and

reminded him of Canova's graces (*Tropical South Africa* 130)—but where he,

rather than the African, is the object of the uncomfortable 'othering' gaze: "I was

no longer my own master," he writes. "Everybody was perfectly civil, but I could

not go as I liked, nor where I liked; in fact, I felt as a savage would feel in

England" (127). His narrative, then, drew on popular adventure plots—such as

those of his cousin Darwin (*The Voyage of the Beagle*), Mungo Park, the famous

Victorian hunter R. Gordon Cumming, while also anticipating the African

adventures of H. Rider Haggard—and mostly followed a predictable formula that

saw Galton, the hero, survive with some impressive scars that garnered him recognition back home.[52]

As the geography historian David N. Livingstone has pointed out, the typical scientific adventurer during the enlightenment and Victorian periods would collect not only specimens and cartographic data from his journey but physical scars. During their expeditions, the bravest bodies were considered those that had been scarred with the traces of toil and self-sacrifice:

> The disciplining of the senses and the deprivation of the body were taken as mutually confirming. That an explorer's body had undergone the rigors of hardship in forbidding surroundings – literally bearing the marks of an alien environment – was considered the insignia of trustworthy testimony. The demonstration of moral courage through its inscription on the explorer's flesh was thus taken as a token of cognitive reliability. For scientific travelers, the mental, the moral, and the material were routinely merged. (152)

For the typical scientific traveler, then, the enlightened explorer's body was literally emblazoned with the signs of cognition. Information was etched onto the body. As Livingstone points out, within the liberal humanist model—where the adventurer is an individual agent on a free course—the body can become a symbol for the enlightened essence within a merger of the mental and the material. Galton's African scars would be his first attempt at imprinting a now metaphorically cyborg body with credibility/information.

Thus, while Galton's adventures in *Tropical South Africa* offer another construction of the cognitively inscribed body (his own), these partially data-

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[52] Galton received the Royal Geographical Society's gold medal on his return. According to Forrest, the medal "gave him an established position in the scientific world" as well as within the R.G.S. (56). In 1854, he was elected the society's council and to the Athenaeum Club "on the grounds of scientific distinction" (56). The French Geographical Society awarded him their silver medal in 1856.

based tales add a new posthuman dimension to the imperial romance, nudging it just a little closer to its descendant, the scientific romance. But, while there are countless examples in *Tropical South Africa* of Galton's attempts at disciplining his body—and the bodies of other humans and animals, as well as the land—he also at times goes beyond merely inscribing (or describing) the body and invents new techniques for dissolving the body altogether. As Brookes observes:

> Galton wasn't the first European to make a name for himself as an African explorer. But he did perfect a style of exploration that was uniquely his own. He returned to England with a vast library of numbers: long lists of longitudes, latitudes and altitudes, the raw material that would give the mountains, valleys, and lakes of the Namibian landscape a more vivid, three-dimensional reality. With his astonishing attention to detail, he refined what it meant to be a meticulous cartographer, setting new standards for future exploratory geographers to follow. (103)

In the African bush, Galton, like other explorers, was immersed in an environment felt to be more physical than his partially enlightened—at least by the standards of the upwardly mobile bourgeoisie—European home. The exotic tropical lands and animals, the alien climate, and the strangeness of the African Others, titillated the senses of the explorers and thus gave them the impression that Africa, along with other colonized continents, was a threatening, and feminized, body to be conquered. Galton, like his imperial counterparts, often confused the exotic with the physical, and, working through translators, assumed many of the Damara, the Hottentots, and even some of the orderly Ovampo were earthy, stupid, and lusty, devoid of the mental and spiritual essences that defined the liberal bourgeois human.

Starting along the banks of the Swakop, Galton forged a path and a pattern that would come to define the rest of his career, especially his work on eugenics.

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Galton sought to discipline the body—to fend off its messy and uncontrollable parts—by turning the flesh into data. His plan at Cambridge, to turn his body into a machine, had failed; thus Galton chose, in his own thinking, to skip the machine age, in which the mainstream Victorian world was immersed, exemplified as it was by the gadgets then on display at the Crystal Palace. When he returned from southern Africa in 1850-51, he time-warped into the posthuman twentieth century. Furthermore, for Galton, the more fleshy the body, from his own imperial vantage point, the more anxious he was to discipline, distance, and 'purify' it with calculations. Galton's interest in the charming Mrs. Petrus, "Venus of the Hottentots" (*Tropical South Africa* 53),[53] exposes the young explorer's data-driven strategy for crossing titillating and taboo boundaries through the only acceptable means available to a Victorian gentleman with a head for numbers: *disembodied cyborg sex from a distance*.

In order to understand Galton's repression of desire into cognition, and the particularly posthuman character of his relationship with Mrs. Petrus, it is useful to compare, for purposes of contextualization, his cousin Darwin's more embodied and erotic response to two Fuegian women he encounters on his own seminal journey, recounted in the *Voyage of the Beagle* (1839). On the *Beagle*, Darwin behaved like the consummate naturalist, accumulating ship-loads of stuffed birds, preserving insects, numbered bones, skulls, and other artifacts—that is, actual materials—to be brought back to England for his own collections and

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[53] Galton no doubt took this term from earlier naturalists; see Sander L. Gilman's chapter on "The Hottentot and the Prostitute: Toward an Iconography of Female Sexuality" in *Difference and Pathology: Stereotypes of Sexuality, Race, and Madness*: 76-109.

for examination and display at the museums. He is always employing himself "in searching for fossil bones" (*Beagle* 93), penetrating the countryside (174), crawling along (175), and providing richly sensual, as well as observational, details of the ports and places he visits.

Unlike the more imperious Galton, Darwin is caught up in and humbled by the intricacies of the natural world.[54] He seems to engage it with the full force of his senses, participating in and at times surrendering to its wonder, such as when, at Maldonado, Uruguay, he finds a little toad "in a situation nearly as dry as at Bahia Blanca [in Argentina], and thinking to give it a great treat, carried it to a pool of water; not only was the little animal unable to swim, but, I think, without help would soon have drowned" (109). In saving his little toad, Darwin vividly makes Evelyn Fox Keller's point, as he does throughout the *Beagle*, that scientific observation—the cornerstone of Victorian natural history—is about manipulating material entities (*Secrets of Life* 74). According to Keller, "looking touches the object, the material entity at which we seem to be looking" ("The biological gaze" 107). Along with imbuing the objects under his observation with a form of subjectivity, Gillian Beer observes that Darwin's "pleasurable declension into the sensory world" also enlivens his own body within the text: "he places his body in a variety of relations with the world" (*Open Fields* 20).

Awash in materiality, tangling himself up in nature's veins, the young Darwin stays open, within the *Beagle* narrative, to both the transcendence and

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[54] For more on the authorial stance of Darwin and Galton, see George Levine's *Dying to Know: Scientific Epistemology and Narrative in Victorian England*. Chicago: University of Chicago UP, 2002.

terror of such a visceral confrontation. Darwin is constantly alive to the possibility

of death as he "penetrates" the country of Tierra Del Fuego where he experiences

"the entangled mass of the thriving and the fallen" which reminded him "of the

forests within the tropics; — yet there was a difference; for in these still solitudes,

Death, instead of Life, seemed the predominant spirit" (*Beagle* 175). Beer notes

that, within the *Beagle*, Darwin's "extreme openness to sense-experience

produces also in his writing a form of nostalgia so intense that it may be called

mourning—a nostalgia that acts perhaps as the screen for more enduring grief"

(*Open Fields* 15-16). His style is often elegiac, memorializing the death on which

natural life is conceived.

The young Darwin's openness is also "intensely libidinous" (20).

Darwin's experience of nature is erotic: "Nature for him is 'She' in a more than

formal usage. Yet he does not insist on this she-ness as difference" (20). Although

women appear only sporadically in the *Beagle,* they are often dissolved into the

web of Darwin's nature (if anything, they are imbued with less life, and certainly

less majesty, than the toads and zoophytes). In his description of the Fuegian

women, Darwin characteristically fuses the female body with the rain and sleet

dripping on their flesh:

> But these Fuegians in the canoe were quite naked, and even one full-
> grown woman was absolutely so. It was raining heavily, and the fresh
> water, together with the spray, trickled down her body. In another harbour
> not far distant, a woman, who was suckling a recently-born child, came
> one day alongside the vessel, and remained there whilst the sleet fell and
> thawed on her naked bosom, and on the skin of her naked child. (177)

Certainly, during this period, there could be nothing more commonplace than a

gentleman traveller's titillation at the sight of a naked native woman, but

Darwin's observational style here offers telling differences. On one level, he does not shy away from his erotic excitement, repeatedly emphasizing the *absolute* nakedness of the Fuegian women. They, like the natural world, are completely exposed to him, but he chooses, in his own mind at least, to direct his lust away from dominance, channeling it into concern. His focus on "the spray, trick[ling] down her body" is openly erotic, as is his emphasis on the sleet falling and thawing on the "naked bosom" of the mother, but he channels his passion into the emotive language of compassion.

In Darwin's tableau of the mother and infant—perhaps faintly referencing the Madonna and Child—the helpless baby is also exposed to the elements. The baby is trapped in a harsh physical environment where there is nothing, except his or her own "skin," to protect him or her from nature and death. The naturalized baby becomes a symbol for aborted growth and rebirth—foreshadowing those creatures in Darwin's work, building on Malthus, who never make it past infancy. As such, the wet baby becomes an object of Darwin's pity. Furthermore, Darwin's focus on the vulnerable baby seems to once again channel his energies away from his erotic desire for the mother to concerns about procreation and the survival of a race—a preoccupation that would come to fruition with the publication of the *Origin* and, later, *The Descent of Man* (1871). Thus, although Darwin may obfuscate his desire for, and involvement in, the natural world with scientific concerns, particularly in his mania for collecting artifacts, and through his erudite prose, there is an intensity to his writing style in the *Beagle* that is unabashedly evocative and sensual; he seeks to "touch" the emotions of the reader

and bring him/her into communion with his wonder at nature's complexity. In other words, Darwin's *Beagle* is a deeply embodied text.

Galton's *Tropical South Africa* also immerses us in a wild world of pain and penetration—always watched over by Death—but shows, by contrast, more anxiety in its observation and then militancy in its reaction to new cultures, people, and landscapes. His preference for aggression is perhaps partly explained by the goal of his journey: Galton went to southwest Africa for the "love of adventure" and because he was "extremely fond of shooting, and that was an additional object" (*Tropical* 1). Although Darwin, too, as much the Victorian adventurer as his cousin, left England with his rifle (he also loved to shoot and offers hunting scenes in the *Beagle*), Galton's reaction was more hysterical in its use of technoscientific strategies (rather than literary ones) in order to distance the observer from his exotic research subject/s. He seeks to intellectualize rather than eroticize. His data-inflected style, for example, was more informed by his observations as a cartographer than as a naturalist.[55]

However, Galton's notorious description of his "relations" with Mrs. Petrus, the Hottentot woman he calls his "Venus," highlights the differing, and often opposing, scientific strategies of the two cousins—and pushes Galton's science into the realm of the posthuman. Whereas Darwin had channeled his desire for the Fuegian women into compassion, Galton converts his lust for the unavailable Mrs. Petrus into calculation and computation. He seeks to 'purify' her

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[55] A Swede, Charles Andersson, went with Galton to perform the collecting duties of a naturalist. Andersson stayed on after Galton returned to England. In 1856, he published an account of his and Galton's journeys, entitled *Lake Ngami, or Explorations and Discoveries in the Wilds of Southern Africa*.

body for himself—to discipline her sexuality and distance it from him—with his

numbers:

> I profess to be a scientific man, and was exceedingly anxious to obtain accurate measurements of her shape; but there was a difficulty in doing this. I did not know a word of Hottentot, and could never therefore have explained to the lady what the object of my foot-rule could be . . . I therefore felt in a dilemma as I gazed at her form, that gift of bounteous nature to this favoured race, which no mantua-maker, with all her crinoline and stuffing, can do otherwise than humbly imitate. The object of my admiration stood under a tree, and was turning herself about to all points of the compass, as ladies who wish to be admired usually do. Of a sudden my eye fell upon my sextant; the bright thought struck me, and I took a series of observations upon her figure in every direction, up and down, crossways, diagonally, and so forth, and I registered them carefully upon an outline drawing for fear of any mistake; this being done, I boldly pulled out my measuring-tape, and measured the distance from where I was to the place she stood, and having thus obtained both base and angles, I worked out the results by trigonometry and logarithms. (54)

By "boldly pulling out his measuring tape," the young explorer does not only

slyly boast of his forwardness, but eyes Mrs. Petrus's body in order to dissolve

it—her threatening flesh, with its unruly and titillating curves—into data.[56] If, as

Hayles posits, "the posthuman appears when computation rather than possessive

individualism is taken as the ground of being" (33-34), then it is not an

exaggeration to suggest that Mrs. Petrus could qualify as our first virtual Eve—

turning herself about to "all points of the compass" in Galton's diagrammatic

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[56] I am using the term "data" here, and throughout this dissertation, as the *OED* has defined it, as "facts and statistics collected together for reference and analysis" (which includes numbers and measurements) as well as for its currently popular posthuman meaning as "the quantities, characters, or symbols on which operations are performed by a computer, which may be stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media." Indeed, the Latin term "data," the plural of "datum," pre-dates the nineteenth century as a philosophical term for "things known" that make "the basis for reasoning or calculation." It is the contention of this historical cultural study that these etymological connections are important in *both illustrating historical connection while preserving the integrity of historical context* (the words themselves, even in their most agonizingly literal sense, are linguistically hinged together while taking on historically and geographically specific meanings).

world. If the moment of the posthuman begins, as Hayles suggests, "when the body can be dematerialized into an informational pattern" (2), then Mrs. Petrus does indeed (dis)embody such a moment, a century before the birth of cybernetics.

Galton immortalizes Mrs. Petrus, for himself and his readers, through the cleansing transformation of her body into the purity of numbers, a practice he would continue in his genealogical research on eugenics (where he translates autobiographies, biographies, and family and life histories into statistics). Galton's later penning of the utopia, *Kantsaywhere*, and his emphasis on life and immortality would surge beyond the deep materiality of his cousin's theory of evolution, linking his dreams for the human race even more radically to those of posthumanists such as Ray Kurzweil. But even this early computation of the female body—a sketching of the career to come—aligns him with current utopias of the female body within posthumanism (Krueger 84). Frank Tipler, Hans Moravec, and Kurzweil "create paradisiacal male fantasies referring to the prospective virtual existence of men: you will discover new dimensions of sexuality partly with virtual playmates and without any fears of impotence or risks for your physical health" (Krueger 84). Oliver Kreuger is puzzled enough to exclaim: "Posthumanism promises a release from our concrete body but by no means is there an end to physicality or even sexuality" (84). But Krueger forgets that it is the very detachment from the messiness of the act itself, and the very emphasis on the detachment, domination, and dissolution into code that makes

even Victorian cybersex (metaphorically speaking) pornographic rather than erotic.

Instead of seeking intimacy and communion with Mrs. Petrus—the stance his cousin would take in the *Beagle*—Galton seeks sexual power through mediation; it is a defining feature of pornography that the desire be fulfilled as much through detachment as domination. Pornography, throughout the ages, has always relied on the absence of intimacy, the absence of bodies, the absence of touch. His *sex*tant allows him to punctuate and graph her now abstract, and so non-threatening and compliant, form, tracing her lines "in every direction, up and down, crossways, diagonally," fantastically touching and penetrating his data-whirling mistress with his "base and angles" and groping her with his "trigonometry and logarithms" (54). He is the cyborg God, reevaluating and remeasuring his android Eve.

Safely contained in a surveyed geography, Mrs. Petrus becomes a cartographic blazon. She is abstracted, dissected and anatomized into her component parts for measurement, as though she were being metaphorically pixilated. Galton pushes the common clichés of scientific travel literature—genres that, dating back to Hackluyt, often dressed up the traveler's erotic angst in scientific language—a step beyond the enlightenment fold. Mungo Park and François Le Vaillant, for example, sensationalize their "botanical, zoological, and ethnographic information" in their travelogues with African flirtations (Pratt 89). As Mary Louise Pratt observes in *Imperial Eyes*, Park "portrays himself as the involuntary erotic object of the African women" while Le Vaillant "becomes a

smitten suitor pursuing the object of his desire" (89). Le Vaillant even stalks his

Venus Galton-like, turning "voyeur as he hides in the bushes to watch Narina and

her companions bathe in the river, then steals their clothes" (89). By numerically

abstracting Mrs. Petrus, however, Galton turns the overheated rhetoric of Le

Vaillant's "Rousseauian *sensibilité*" (89) into cold calculations that repress his

erotic impulses. Galton uses his sextant to diffuse the explosiveness of his

dangerous liason; yet it was a transgressive desire that, Pratt notes, abided by the

rules of Eurocolonial survival literature, where "alternative, relativizing, and

taboo configurations of intercultural contact" were tolerated and even encouraged

because the "imperially correct" outcome was guaranteed: "The survivor

survived, and sought reintegration into the home society" (87).

Galton's south African expedition is only one node in an elaborate system

of colonial communication between central-control-command and its intelligence-

gathering offshoots in the field. These intelligence-gatherers, like the super self-

disciplining and trustworthy Galton, form part of a chain of "narrow and fragile

networks, resembling the galleries termites build to link their nests to their

feeding sites" which operate according to the principles of extraction,

accumulation, and abstraction (232). The young Galton, panting his way through

the Namibian desert, romantically calculating his whereabouts by the stars, is

charged with a mission—to report back to the calculating centre with figures, or

traces, precise enough for immediate data processing. As Brookes has noted,

Galton was more proficient than most at using his clocks, compasses, and

quadrants to record trustworthy data in his maps and logbooks. At the time, 'data processing' at the Royal Geographical Society meant combining the figures of travelers such as Galton onto "a flat surface of paper" that might be "archived," "pinned on a wall," or "combined with others"; it is a process that Latour argues helps "to reverse the balance of forces between those who master [Galton, the R.G.S.] and those who are mastered [local Namibians]" (227).[57]

Latour's own extraction of abstracted knowledge is, however, still focused almost exclusively on the materiality of the paper inscriptions that travel along these "networks of accumulation" (229) even though his own strange stalking of scientists highlights another important shift, namely, enlightenment culture's gradual move away from materiality. Latour's stories about the historical accumulation of traces, for example, show that these traces are material only in the slightest sense—and this was increasingly true as the standardizing networks expanded—since the whole idea of the termite network of travellers was to create a system that erased as much material as possible in favour of efficiency. The idea is for information to lose its body through the invention of means for rendering these traces "mobile so that they can be brought back," "stable so that they can be moved back and forth without additional distortion, corruption or decay," and "combinable so that whatever stuff they are made of, they can be cumulated,

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[57] Latour elaborates: "The cartographers in Europe start gathering in their chart rooms—the most important and costliest of all laboratories until the end of the eighteenth century—the bearings of all lands. How large has the earth become in their chart rooms? No bigger than an atlas the plates of which may be flattened, combined, reshuffled, superimposed, redrawn at will. What is the consequence of this change? The cartographer dominates the world that dominated Lapérouse. The balance of forces between the scientists and the earth has been reversed; cartography has entered the sure path of a science; a centre (Europe) has been constituted that begins to make the rest of the world turn around on itself" (*Science in Action* 224).

aggregated, or shuffled like a pack of cards" (223). However, although Latour seems uninterested in linking his materially grounded observations of "science in action" with the informatics of Haraway and Hayles, he does make the connection obliquely when he makes no distinction between these historical travel networks and the networks represented on the computer screen. At one point he even observes that "if inventions are made that transform numbers, images and texts from all over the world into the same binary code inside computers, then indeed the handling, the combination, the mobility, the conservation and the display of traces will all be fantastically facilitated" (228). In other words, computers will become what they have since become—an information super-highway.

In Galton's era, however, the transition was only just beginning and the networks were notoriously costly, clumsy, and inefficient. Yet, like the body of Mrs. Petrus herself, the lay of her land had to be (mostly) coded onto charts so that it could be brought to England for geographical knowledge production (which would inspire further expeditions)—and so that England might expand its partially data-framed synoptical view of the world. Galton was a product of, and was helping to produce, a prototypical informatics of domination that operated like a global computer for creating information networks out of exhausted, travelling bodies. It would not be precise enough, however, to describe all such participants in these global chains of extraction, accumulation, and abstraction as formative of a proto-posthuman consciousness. Galton's participation in the network is particularly anticipatory of the world of informatics in that he dedicated the rest of his career to the perpetuation of such networks—mapped

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now onto the exotic territory of the human subject itself—as a path for human

salvation against the blight of the diseased and deformed body, including a

diseased and deformed external nature.[58] While Galton was not the only statistics-

obsessed numbers man of the Victorian era—as Dickens declares in *Hard Times*

and as Theodore Porter has documented[59]—he would be the only one to dedicate

the rest of his life, as we shall see in Chapter Two, to engaging with projects for

human data production in order to eugenically develop data-based humans.

After returning home from his adventure in 1852, Galton gained "instant

celebrity" and credibility, having transformed himself from "fun-loving idler to

serious scientist" after impressing members of the Royal Geographical Society

with his "dense tables of data extracted from the masses of numbers accumulated

in his notebooks" (Gillham 93). He soon married Louisa Butler, the daughter of

George Butler, a former Senior Wrangler and headmaster of Harrow who, like

Galton, had suffered a serious breakdown during his student years at Cambridge

(94). In 1853, *Tropical South Africa* was published to much acclaim and was

followed up by a shorter guidebook for the Royal Geographical Society, *Hints to

Travellers: Scientific and General* (1854). In 1855, he published another,

expanded guidebook, *Art of Travel*, which, like his previous efforts, is marked by

its emphasis on the invention of instruments for exploration and on methods for

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[58] See Thomas Richards, *The Imperial Archive: Knowledge and the Fantasy of Empire*. London: Verso, 1993.
[59] Dickens' *Hard Times* opens with these satirical lines: "Now, what I want is, Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else, and root out everything else. You can only form the minds of reasoning animals upon Facts: nothing else will ever be of service to them. This is the principle upon which I bring up my own children. Stick to Facts, sir" (9)! See also Theodore M. Porter's *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* and *The Rise of Statistical Thinking, 1820-1900*.

surveying, calculating, and recording the traveler's alien surroundings. For all of its eccentricities, *Art of Travel* was Galton's most popular book and was reissued eight times between 1855 and 1893 (98).

Indeed, the publication of *Art of Travel* marks a brief moment when Galton attempted to put his "intelligence"—data-collecting and information-gathering techniques—to work for the British military, at the time entrenched in a brutal war in the Crimea. After hearing harrowing reports of hardships for the troops campaigning in the Crimean War (1853-56) from the British press, Galton contacted the War Office to see if he might pass on the *Art of Travel*'s survivalist techniques to the soldiers struggling in the field (Gillham 101-102; Pearson Vol. II, 15-18). In 1855-56, Galton lectured and set up a museum/laboratory at Aldershot for further experimentation in the "Arts of Campaigning" and for passing on the information he had collected in the bush. Galton's brief involvement with the central command of the British military only emphasizes how inextricably wired his informatics was to colonial enterprise and to England's military might abroad. As with the Boer War at the end of the century (Trotter 114), the quality of army recruits was a concern, at least for Galton, who urged the Crimean troops to draw supplies from nature "and not through the medium of manufactories" (qtd. Pearson, Vol. II, 17); in other words, it was each recruit's responsibility to discipline his own body and mind (as well as the unknown nature that surrounded him) in order survive the Crimean front.

Yet while Galton's hopes for the Crimean troops suggest a liberal humanist's faith in an individual's free will, his failure to attract much enthusiasm

for his techniques amongst the officers at Aldershot may have disabused him of his notions on self-improvement (Gillham 102).[60] Furthermore, many of Galton's survivalist techniques in the *Art of Travel*, from which he derived his "arts of campaigning," were inventions of his own intensely data-based mind and they assume the same mental approach from the reader. Galton's theory on the "art of pathfinding," for example, displays a vision of the wilderness as a safe place where mathematical patterns can always emerge to save the wayward soul. Galton advises calculating your way back to the proper route. He asks his disoriented reader to stay perfectly rational—to imagine his movements as patterns in a purely geometrical space/sphere: "Calculate coolly how long you have been riding or walking, and at what pace, since you left your party; subtract for stoppages and well-recollected zigzags" (*Art of Travel* 296).

Galton then illustrates his theory with a set of graphics that could have been computer-generated as much as engraved in a book, which he purposefully attempts to make light and compact for increased mobility. The lost reader encounters a series of complicated compass calculations, odd diagrams of parallelograms cut by tangents and circles (and later an octagon), and a table of probable distances. Thus, from his position now at the "centre of calculation" (Latour 218), Galton is able to send data, and data-collecting techniques, out into the field rather than merely collecting facts as one link at the end of a long chain in the "network of accumulation" (229). He is able to train other travellers to see

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[60] The War Office did, however, order ten of Galton's survivalist models to be distributed to various training camps after the war ended in 1856 (Gillham 102).

the world as he saw Mrs. Petrus, as a whirl of data—a travelling trait that brought

him great scientific respectability and popular success. In his *Art of Travel*, he

tells his fellow explorers how to tame the exotic landscapes and humans they

encounter by translating them into numbers to be calculated by the light of the

sun, the moon, and the stars. Even in these early travel books, Galton is projecting

a posthuman consciousness onto an ever more virtual British empire.

Let us now shadow Galton as he moves towards our second juncture,

rooting out material impurities as he goes, turning the world into a constellation of

codes. By the early 1860s, Galton was moving in London's elite intellectual

circles—socializing with Thomas Carlyle and Herbert Spencer (Brookes 123-

124), and even George Eliot and George Henry Lewes (Gillham 104)—but, more

important, he now held a central position within the empire's informatics of

domination (or centre of calculation).[61] From his position as general secretary of

the British Association for the Advancement of Science (1863-1867), then

president of the Geographical (1862, 1872) and Anthropological (1877, 1885)

Sections (Gillham 105), and as a member of the Management Committee of the

Kew Observatory (1858-1866), Galton was at the helm of a scientific "command-

control-intelligence" (Haraway *Simians* 164). He was able to monitor the various

intelligence-gathering tendrils that radiated out from the computing web of

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[61] Galton described Carlyle, perhaps tellingly, as a man of many sentiments but with little
supporting data. According to Galton, he "was the greatest bore that a house could tolerate . . .
[He] raved about the degeneracy of the modern English without any facts in justification, and
contributed nothing that I could find to the information or pleasure of the society" (qtd. Brookes
124).

London's scientific societies and associations. From his house at Rutland Gate, from the Kew Observatory, or from any of London's growing number of zoos and museums, Galton sat in front of and managed accumulations of data—even standardizing their instruments of collection—provided by the increasingly technoscientific reaches of empire. From London, he could now see the globe (and the universe) dissolved—thanks in part to the influence of his own informatics—into more and more precise patterns of longitude and latitude carved up into boundary-marked colonial territories and nation-states.

But his move toward virtual reality in the realm of external nature started with a turn of his calculating head. He began by turning away from an increasingly informatted earth, allowing his head to float in some newly patterned clouds. Perhaps prompted by the sinking of the *Dalhousie*—the ship that had brought him to South Africa—after she was caught in a surprise storm off Beachy Head—Galton started thinking more about meteorology and experimented with different ways to map the weather. By 1861, he was retrospectively charting English weather and collecting synchronous data from weather stations across northern Europe, plotting the information on atmospheric maps complete with circular and hexagonal symbols to show barometric pressure and wind direction. He published his maps in *Meteorographica* in 1863 and even used the data to discover the anti-cyclone, a weather system that moves in the opposite direction to the cyclone. The methods of the new meteorology, then, fit with Galton's increasingly more easily defined *modus operandi* of data-processing the natural world; he was now helping to transform the weather—as he had done with the

landscapes of Africa and the curves of Mrs. Petrus—from a local, sensory experience to 'universalized' collections of figures.

Galton was no more alone in his fascination with meteorology than he was in obsessing over African cartography and women, but he was unusual, and even impressive, in the zeal with which he made measurements, quantified phenomena, and calculated numbers. As a Victorian polymath, he was famously attracted to many different fields, or what we now consider to be discrete areas of knowledge production: exploration, meteorology, eugenics, genetics, psychology, statistics, anthropology, and photography. However, these fields were united, at least for Galton, in their scientific quest for disembodiment, or in their translation of the real to the virtual, a process that would reach its zenith in the computer age but which was manifesting itself in odd ways in the nineteenth century. Galton's eccentric fixation with numbers was only part of the story, but it was an important part. Galton, at least in his own mind, was now taking his constitutionals in partially virtual land, which he mapped in his head while surrounded by virtual weather, or taking lunch breaks in the park next to the rustling of virtual trees, every leaf of which he had counted and calculated into a pattern (see epigraph above). Darwin's tangled bank was slowly being transformed into code that, in the late twentieth century, would flicker on screens, connecting the 'world' to a universal, collective (i.e. data-collected), virtual "experience."

And yet the sinking of the *Dalhousie* had taken the material life of his friend Captain Butterworth, who drowned somewhere in the English channel in the middle of a raging gale. Even though the pre-digital world was beginning to

erode the edges of the real—and partly to control these inexplicable traumas and vicissitudes—Galton knew there was much work to be done in ridding the world of the unpredictable mess of material existence, no matter what its ostensible pleasures. Ironically, Robert FitzRoy—Darwin's captain on his *Beagle* voyage, which produced the evidence that would lay the groundwork for the theory of natural selection—was contributing to Galton's post-nature ideals as the head of Britain's newly formed Meteorological Department. FitzRoy was "compiling statistical information on the weather" (Gillham 146), coining the term "synoptic charts" (146), inventing a barometer, pioneering a storm warning system, and eventually publishing (often inaccurate) weather forecasts in the *Times*.

Now it might seem that we have sailed off course on our way to Galton's cleansing of Darwin's garden, or found ourselves caught in our own gale of facts and figures from Galton's life, and that there cannot be any intrinsic link between the weather, posthumanism (or postnaturalism?), and eugenics. There is a link, however, and it can be found in the practice of forecasting, which relies on the accumulation of historical data to predict the future. Both Galton, who was instrumental in the addition of weather maps to newspapers, with the first one appearing in the *Times* in 1875, and FitzRoy, who published his forecasts a decade earlier, relied on the simultaneous collection of weather information over different locations to form patterns that might be used for weather prediction. Hence, meteorology, as Galton practiced it, was a form of futurology, grounded in statistical probabilities, that sought to divine order from what had previously been thought of as random events controlled by God or the gods. In his research on

eugenics, he would attempt to collect historical data, or genealogies, for similar purposes—to forecast, and so control, the future of the race.

FitzRoy's forecasts, however, while at first a resounding success—even attracting the attention of Queen Victoria, who asked the Admiral whether or not she should travel to Isle of Wight on one occasion (Gillham 146)—were so flawed that the *Times* eventually disowned them and offered them up to ridicule (147). In 1865, FitzRoy took his own life, perhaps because of the criticism over his misleading weather reports. Galton was eventually brought in as part of a blue-ribbon committee to review FitzRoy's work at the Meteorological Office, and he came out with a highly critical report, including a section on "Foretelling weather," concluding that FitzRoy's predictions had been scientifically shabby and premature. In 1868, a Meteorological Committee was put in charge of storm warnings and weather charting, and Galton remained a member for 40 years, initially designing instruments for weather mapping. He was also involved with testing and standardizing scientific instruments, such as "sextants, compasses, thermometers, watches, telescopes, field glasses, and photographic lenses" (150), at the Kew Observatory.

But, as at Cambridge, Galton seems to have become a victim of his own inventions; his body and mind once more gave out. By 1866, he recalled in his *Memories*, "his health suffered a more serious breakdown than had happened to it before" (Gillham 150). He had once again found the limits of his own corporeality:

> Those who have not suffered from mental breakdown can hardly realise the incapacity it causes, or, when the worst is past, the closeness of the

analogy between a sprained brain and a sprained joint. In both cases, after recovery seems to others to be complete, there remains for a long time an impossibility of performing certain minor actions without pain and serious mischief, mental in the one and bodily in the other. (qtd. Gillham 151)

Mental work, for Galton, was always akin to physical work—and his thinking, in this way, suffered from its own embodiment in the brain. Man might be a Cartesian machine but it was prone to error and dysfunction which could not be easily repaired with some quick tinkering and minor adjustments; yet the idea of engineering better, and less embodied, human minds was about to provide the impetus for his future research.

But as we approach the last of these early junctures on Galton's journey towards posthumanism, it is important to keep in mind that meteorology would not have been possible as a science without the invention of another, often overlooked, Victorian technology—namely, the telegraph. It is uncanny that Galton began the long arc of his intellectual career with a modest article, published in 1851 in *The Athenaeum*,[62] long overlooked in his biography, entitled "The Telotype: a printing Electric Telegraph." Galton's article provides a crucial insight into the general direction of his early thinking—not so much towards eugenics in these pre-*Origin* days but towards information technology and the particular form of Victorian informatics epitomized by the telegraph, which clearly prefigured the computer as a data-processing system and encoder linked to a global network of communications.

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[62] Galton was misidentified as Francis Gulston when the article appeared, perhaps explaining some of the neglect.

Despite its significance as a precursor for modern information systems, the telegraph has been "one of the least studied technologies, certainly the least studied communications technology" (Carey 201). Clayton calls it "that long-neglected technology in the histories of modernity" which has an "odd relation to other communications networks, and an odd relation to the usual study of modernity" (79).[63] He argues that the neglect of the telegraph within these histories is a sign that the telegraph "presents a distinctive historical problem, one that complicated many common assumptions about modernity and postmodernity" (51). Yet the telegraph was "the first comprehensive information network," which rapidly 'wired' the world between 1837—when it was invented more or less simultaneously by Cooke and Wheatstone in Britain and Morse in the United States—and the 1840s, a "feat that foreshadows the astonishing growth of the Internet" in the last two decades (51). As with the Internet, "the telegraph was a point-to-point system, allowing two-way communication between individuals, not a one-to-many or broadcast system such as radio, film, and television, the media most often studied in communications theory" (51). In this

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[63] Richard Menke, of course, has redressed some of this neglect with his *Telegraphic Realism: Victorian Fiction and Other Information Systems* (2007). Menke's arguments, however, are mostly concerned with the influence of telegraphy on Victorian realism, especially canonical authors such as Charlotte Brontë and Charles Dickens. On the other hand, my study's arguments, aside from using a more Clayton-like narrative-based methodology (which looks at links between the Victorian period and our own), have to do with its eugenic effects within the Galtonian romance (both fictional and non-fictional). It is part of the point of this study to draw our attention away, if for a moment, from the Victorian canon to engage with those (admittedly less palatable) writers and novels most directly engaged with, focused on, and formed by these technologies, and indeed, by the idea of technology (if not information) itself. Menke does remark, however, that "Hayles's critique of modern information's propensity to lose its material body, and to encourage fantasies that its users might do the same, elaborates a tendency in Victorian accounts of the telegraph and electricity itself" (76). This study finds its focus in these fantasies and on this eugenic tendency.

way, the telegraph complicates the usually linear or causal histories of technology by overleaping the broadcast technologies that took hold at the turn-of-the-century and instead "finds its place in the communications paradigm that emerged with the advent of the computer" (68). The vocabulary used to describe the telegraph even anticipates "cyber-babble": both telegraphic and internet discourses are, for example, 'wired', 'encoded', 'informatted', 'web-based', and 'networked' (Clayton 53-54).

Thus, these two technological discourses are connected by wires that link two very different centuries in some surprisingly 'posthuman' ways—creating a grid of globally dominating informatics that raises similar, although not identical, hopes and concerns, and constructs similarly virtual and cyborg subjects. At the same time, the differences between the two discourses should not be undervalued. Clayton points out, for example, that the telegraph, as opposed to the Internet, relied upon aural rather than visual signals, and certain "odd" effects were produced by its acoustic decoding of information which run counter to the contemporary 'posthuman' phenomenon, as expounded by Hayles, of visual data processing, which seems "to reinforce the growing abstraction of modern life" (Clayton 53). Yet Galton's telotype[64] was based on visual rather than aural communication and so is even more closely linked to web-based visual technologies in its conception and impetus; it does not raise the same "odd" issues Clayton addresses in his chapter on "The Voice in the Machine."

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[64] Galton was not alone in trying to come up with a prototype for the "telotype" or "teletype" (Clayton 52).

Galton's prototype worked by having an operator "send messages by typing on the local telotype, using keys marked with alphabetic letters, resulting in transmission of electrical signals to the remote telotype, which would ultimately print out the letters sent, without requiring a manual 'decoding' stage."[65] Galton's printouts grounded his device in a more obvious materiality than the Internet, perhaps, although printouts are also made by computers, but the essence of his idea was to communicate visually over great distances, as is the case with the internet (see Chapter Four for his interplanetary version of the telegraph).[66] Thus Galton's telotype speculates, as his work does generally, on a more posthuman future, and so advocates for the *Victorian* construction of new forms of embodiment (or disembodiment as a form of idealized immateriality), utopian discourses of immortality, and encrypted and abstracted language practices (which reinvented the concept of intelligence as a form of decoding and surveillance). As such, his work on the telotype also raises familiar posthuman concerns—which anticipate more modern concerns but which had not yet fully taken root in the Victorian mainstream—with human estrangement, dislocation, and decontextualization.

To better understand Galton's role in the production of these Victorian posthumans, we must review how the telegraph helped create a spatial metaphor for the diagrammatic dematerialization of external nature, as opposed to the way Galton's eugenics worked as a temporal metaphor for the informatting,

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[65] See Galton, "The Telotype" at <www.galton.org>.
[66] It was also a preoccupation of his travel writing; he even patented a version of the heliostat, which sends visual sun signals.

abstraction, and transmission of internal nature, a subject we will explore in the next chapter. As we have seen, Galton, after his celebrated travels in tropical South Africa, and as a prominent member of London's scientific elite, was already plugged into an elaborate system of colonial communication between central-control-command centres (232). Although Latour does not mention it, the arrival of the telegraph only served to expand and further entrench these increasingly data-processed and so posthuman tendrils of empire. Indeed, Carey makes the point that the advent of the telegraph marked the moment when colonialism turned imperial, with the centre now able truly to consolidate its authority over its representative offshoots: "Until the transatlantic cable, it was difficult to determine whether British colonial policy was being set in London or by colonial governors in the field—out of contact and out of control. It was the cable and telegraph, backed, of course, by sea power, that turned colonialism into imperialism: a system in which the center of an empire could dictate rather than merely respond to the margin" (163).

Furthermore, by developing a version of the telegraph, Galton was helping map out a spatial metaphor for an imperial brain where "coordinates of thought" (Carey 162) were linked via the synapses lit up through a global telegraphic signaling system. This imperial network operated as a metaphor for the kind of data-based intelligence he would eventually seek, in *Hereditary Genius* for example, to transmit through the generations in order to develop a superior and even more imperial British race. Galton muses on the consequences of his telegraphic vision in his article:

> The communication being so immediate, answer following question as soon as it is put, affords much more nearly the advantage of a personal communication than the best regulated post office ever could. Any scheme to introduce telegraphs generally, would probably be first confined to London. There would be central offices, and from these bundle of wires would radiate to numerous branch offices; from the branch offices again wires would pass along the adjacent streets, and supply houses as they passed.[67]

From here it was only a small step for London's connectivity to be 'universally' transposed onto the globe, creating as it did so 'universal' subjects who could only be recognized (or, as it turned out, heard) as a human consciousness through the impersonal medium of typed characters, often encrypted in morse code (although Galton's telotype was meant to print real characters rather than dot-dash marks).

In both telegraphy and cybernetics, similar questions about embodiment arise. In both discourses, the body defers to information—indeed, information stands as a symbol for the body—and, in both, the method and apparatus of signaling creates new informational subjects and bodies. Thus, the cyborg should not be viewed as an exclusively modern phenomenon. Indeed, as Clayton insists, the telegraphist might be seen as "an early version of Donna Haraway's cyborg, a woman wired into the information network, the interface between a vast technological network and a human system of customers and exchange" (77). In this way, the telegraph produced a version of Victorian posthumanism, alongside Galton's own eugenic posthumanism, as the people of the nineteenth-century rapidly plugged into the network, experiencing as they did so, and as we still do

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[67] See Galton, "The Telotype" at <www.galton.org>.

with the Internet, a "thrilling dislocation" that is intimately linked to the

"disembodied sense of 'thereness' felt by many in cyberspace" (76).

Furthermore, as with the Internet, this thrilling sense of disembodiment

gave rise to a new sense of idealism that bordered on religious belief, an idealism

which Leo Marx describes as the "rhetoric of the technological sublime" (qtd. in

Carey 159) and which James Carey and John Quirk modify as the "rhetoric of the

electrical sublime" (159). Electricity, of course, was the engine of the telegraph,

and as it was invisible, it seemed to imbue the technology with an almost magical,

mystical, or miraculous aura. As Carey notes, electricity and the telegraph

"presented the mystery of the mind-body dualism and located vital energy in the

realm of the mind, in the nonmaterial world" (159). Thus, electricity itself is

largely responsible for feelings of posthuman disembodiment, whether Victorian

or postmodern, as it seems to invoke immaterial essences rather than a more

scientific materialism. The electric telegraph, the 'voice in the machine,' inspired,

as does the Internet, a new utopian ideology centred on an escape from the limits

of the body and its locality, finitude, and specificity; this means of escape might

have been one of the reasons why the new technology would have appealed to a

young Galton. According to Carey:

> One finds in this rhetoric of the electrical sublime a central tenet of
> middle-class ideology: that 'communication, exchange, motion brings
> humanity, enlightenment, progress and isolation and disconnection are
> evidence of barbarism and merely obstacles to be overcome'. . . The
> eighteenth-century ideal of universalism—the Kingdom of God and the
> Brother of Man—included a belief in a universal Human Nature. People
> were people—everywhere the same. Communication was the engine that
> powered this ideal. Each improvement in communication, by ending
> isolation, by linking people everywhere, was heralded as realizing the
> Universal Brotherhood of Universal Man. (160)

Such utopian ideology, or the discourse of the "electrical sublime," suggests that, by turning external nature, including the human body, into data translations bound for exchange across the wires, the Victorians were reaching a new level of consciousness. This 'higher' Victorian consciousness, purportedly on the verge of bringing peace and harmony to the universal brotherhood of man, depended upon the telegraph in order to erase all traces of the physical through a 'purifying' process which might be referred to as *eugenic informatting*.

Hence, it is no wonder that the telegraph comes to be understood within a discourse of national health and sanitation. As Briggs and Maverick stated at the time, "It has been found that the old system of exclusion and insulation are stagnation and death. National health can only be maintained by the free and unobstructed interchange of each with all. How potent a power, then, is the telegraph destined to become in the civilization of the world! This binds together by a vital chord all the nations of the earth" (qtd. Carey 161). The telegraph wire is described here with an almost sexual potency as it breathes Life through its "vital chords." The technological links are like veins pumping energy into the nation's heart, or umbilical wires plugged into the womb of a central authority in London or elsewhere. As with Galton's eugenics discourse, then, telegraphic discourse was imbued with an almost hysterical fear of death—especially death as defined by the limits of the body. But within Victorian telegraphy, death also meant disconnection from the system: shutting down links and unplugging; in other words, privacy. These concerns echo today's similar fears about parochialism, isolation, and insularity—again, concepts related to privacy and

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mystery—which are also signs, within the information age, of 'backwardness,' insignificance, and symbolic death.

The utopian fear of the local and private within Victorian posthumanism also influences the telegraph's effect on language, which, as Carey states, now "had to be flattened out and standardized" (162), and which led to the "the origins of objectivity" (162), which was sought in the United States, "in the necessity of stretching language in space over the long lines of Western Union" (162). The wire services "demanded a form of language stripped of the local, the regional; and colloquial. They demanded something closer to 'scientific' language, a language of strict denotation in which the connotative features of utterance were under rigid control" (162). Telegraphic encoding demanded that all traces of ambiguity in speech—aspects of language connected to location—had to be eliminated. Thus, the use of morse code and Galtonian-style encryptions led to the "the disappearance of forms of speech and styles of journalism and storytelling— the tall story, the hoax, much humor, irony, and satire" (162). These ribald, bawdy, and improvisational forms of storytelling, which were often situated in a locality and expressed bodily, were now replaced by a coordinated relationship between writer and reader as "the story divorced from the storyteller" (163). The new form of 'universal' communication on the telegraph was reduced to a commodity, "something that could be transported, measured, reduced, and timed" (163). In this way, the new linguistic codes produced new statistical subjects who, as Igor Stravinsky has argued, transformed "the entire mental world into quantity, and the distribution of quantities in space so that the relationship between things

and people becomes solely one of numbers. Statistics widens the market for

everything and makes it more uniform and interdependent" (qtd. Carey 171).

The new statistical, quantifiable, and encoded language was also a public

language that had to be re-encrypted for privacy (from the prying eyes of

telegraphers, for example, some of whom were caught spying for corporations

and foreign states). In Galton's plan for the telotype, secrecy was of utmost

priority:

> If the wires on leaving the contact keys were, any of them, crossed . . . it is
> obvious that signals passing through them would appear totally different at
> the distant station to what they were at the near one; but if the wires were
> again crossed (re-reversed) at the distant station, then the signals would be
> put right again and become intelligible. In this way two telegraphs might
> evidently correspond freely with one another, while an interposed
> telegraph could not understand the message that were conveyed through
> it.[68]

Without further encryption, communication, once intimate and private, becomes

public. It becomes information and, as Jerome Christensen notes, a new form of

"intelligence"—a term whose usage in the eighteenth century reflected the

rationalization of the postal service, but which might also be applied to the

exposure of private messages traveling along telegraph lines, and is thus related to

the growing power of both government and corporate surveillance. Hence, the

very definition of "intelligence"—and words related to intelligence—becomes,

thanks to Galton and others, posthuman as it comes to apply more and more to

literal and figurative code-cracking, decipherment, and puzzle-solving; as a

corollary, "genius" and "talent" begin to lose their eighteenth-century relationship

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[68] See Galton, "The Telotype" at <www.galton.org>.

to "spirit" and "art" in favour of a Victorian form of hacking into nature—finding

its codes, whether internal (genetic) or external (mathematical and statistical

natural laws). At bottom, however, the 'new' intelligence, as an epistemological

form of surveillance, itself became code for making private worlds public—or,

from a more constructivist perspective, at imposing patterns onto chaos and

reason onto the unknowable. In this way, Victorian science had a lot more in

common with religion than it realized.

Galton spent much of the last thirty years of his life trying to identify, or

decipher, this 'new intelligence'—this code-cracking potential—in the stilled and

ghostly faces of the images he started composing in 1878 as 'pictorial statistics'

or composite portraits. In his first article on the subject for *Nature*, "Composite

portraits made by combining those of many different persons into a single figure,"

Galton outlines the technique he pioneered for producing a single, blended

image—his composite or "type"—by combining photographs of different

individuals through repeated limited exposure. Composite portraiture is the last,

and perhaps most poignant, of Galton's posthuman technologies that involves his

encoding of external (spatial) nature rather than internal (temporal) nature. In fact,

Galton borrowed his composite technique from his own research in geographic

and cartographic data-processing, specifically from an 1877 paper on stereoscopic

mapping, "On Means of Combining Various Data in Maps and Diagrams." As he

notes in his *Nature* article, it "was while I was endeavouring to elicit the principal

criminal types by methods of optical superimposition of the portraits, *such as I*

frequently employed with maps and meteorological traces, that the idea of composite figures first occurred to me" (qtd. Pearson, Vol. II, 283-284; my emphasis).

Thus, Galton clearly set out in his work on composite photography to chart the human body, especially the face and profile, just as he had done decades before, in 1850, with Mrs. Petrus, but also with the South African landscape and later with the English weather. Galton's composite photographs also provide a crucial link between Galton's posthumanous obsession with data-processing and his fixation on developing a eugenics code. His work on composite portraiture adds an image-based dimension to our discussion of Galton's eugenic posthumanism, which has so far been limited to the scientist's copious, materially printed, *lists* of information and intelligence in the forms of statistics, measurements, numbers, and calculations. It is the composite *image* that fully projects the extent of the connection between Galton's posthumanism and our own—especially in relation to his attempts to transmit his profiles through the telegraph—while also distinguishing the particularities of Galton's Victorian posthumanism especially when it came to, ironically, his *aesthetic of generalization*.

Although many of the cultural studies of Galton's composite photography have understandably focused on Galton's attempts to identify the Other as a physiological and mental type, as in the case of criminals, the Jews, the sick, and

the mentally ill,[69] Galton's ultimately frustrated attempts to find a correlation between physical appearance and mental characteristics far exceeded a practice of Othering. Throughout the second half of his career, his research became a quest to find resemblances of the Self for potential future use in eugenic reproduction. Galton felt sure that there was a correlation between physical and mental characteristics and that his composite photographs, as "pictorial equivalents of those elaborate statistical tables out of which averages are deduced" (qtd. Pearson 297), would prove his hypothesis. Pearson argues that Galton developed the composite images almost exclusively "to distinguish between mental types" because he was from a generation in which "the belief in some form of phrenology was still appreciable. He accordingly sought to isolate types and to measure deviations from facial type, in order to determine whether facial variations were correlated with mental variations" (301).

Ironically, it was the frustration of this quest to quantify the mind through the objectification of the body that led Galton to accumulate a mass of informatted material. Pearson notes, "the amount of labour he put into this research was immense; there is a great mass of manuscript matter, there are endless profiles drawn by assistants, there are models of apparatus, and there is apparatus itself" (303). It is also telling that Pearson, by 1924, understood that the scientific evidence showed no basis for such a phrenological correlation, and

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[69] Several useful studies have been done on Galton's composite photographs of Jewish boys, in particular. See Daniel Novak, "A Model Jew: 'Literary Photographs' and the Jewish Body in *Daniel Deronda*" *Representations* 85 (Winter 2004): 58-97; also Sander Gilman, *The Jew's Body*. (New York: Routledge, 1991): 68 and *Smart Jews: The Construction of Jewish Superior Intelligence* (Lincoln, NB: U of Nebraska P, 1996): 36.

acknowledges in his discussion of Galton's photographs in *The Life, Letters, and Labours* that the limitation of Galton's static composites was that they did not show the materially instantiated "play of features," which, although still problematic to us, Pearson associated with mental qualities such as intelligence.

But Galton's composites, from the start, even as they accumulated masses of material, were intended to reduce the evidence of such material instantiation of the mind. With his composites, as well as in his work on the transmission of human intelligence (in this case, using abstracted data to produce abstracted minds and bodies), Galton attempted to dissolve the physical into the mental in a search not only for "bodiless information" (Hayles 12) but for the ideal, or Platonic, human form which, in his mind, would be fit for eugenetic transmission. In his composite photographs of classical medallions, for instance, such as those representing the likenesses of Alexander the Great, Nero, and Cleopatra, he is quick to point out that Cleopatra's composites, presumably representative of the racial Other, give no "indication of her reputed beauty; in fact her features are not only plain but to an ordinary English taste are simply hideous" ("Generic Images" 165) whereas he managed to compose "a singularly beautiful combination of the faces of six different Roman ladies, forming a charming ideal profile" (165).[70] Galton repeatedly returned to what he would have defended as the classical Greco-Roman ideal of beauty as harmony and balance, but which we might be more likely to interpret as a transparent attempt to return to the Victorian ideal of racial 'purity', as he attempted, through his photographs, to extract a heroic 'type'

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[70] In "Generic Images," Galton says he obtained his medallions, coins, and gems from the British Museum where had a curator select suitable medals and procure casts (165).

by informatting Carlyle's Great Men—to go along with his Othered 'types'—for rational reproduction. In *Hereditary Genius*, he also held up the Greeks as his model for the ideal type: "The ablest race of whom history bears record is unquestionably the ancient Greek, partly because their master-pieces [*sic*] in the principal departments of intellectual activity are still unsurpassed, and in many respects unequalled" (396). Likewise, he compares the idealized women of his science fictional utopia, *Kantsaywhere*, to the Roman goddess, Aurora, as depicted in Guido Reni's engraving in Rome: "It is a favourite picture of mine and I recall it clearly. The girls have the same massive forms, short of heaviness, and seem promising mothers of a noble race" (qtd. Pearson 422 Vol. III).[71]

But, as we shall see, even Aurora's massive forms were, in *Kantsaywhere*, produced from statistical data and so achieve, in Galton's writings, a form of informational abstraction. Galton's ideal can be defined as the absence of particularity revealed through material instantiation. His aesthetics of generalization is even clearer, however, in his discussion of the perfect human mind (likely modeled on his own): "The criterion of a perfect mind would lie in its capacity of always creating images of a truly generic kind, deduced from the whole range of past experiences" (qtd. Pearson 297). By contrast, he argues that "children, savages and uneducated persons" always have the tendency to attach far too great a weight to the "strange and marvellous" (297). Thus, the standardizing technique involved in producing a composite photograph is, according to Galton, almost an analogy for the workings of the perfect human

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[71] He also compares some idealized native women in *Tropical South Africa* to Canova's Graces.

brain even as it simultaneously functions to produce an image of the mental

characteristics of the Self and Other—akin to crude brain scans—through the

overlayed exposure of 'typical' physiognomical characteristics.

Galton's view of his 'pictorial statistics' as akin to producing the classical

ideal brought him to the further conclusion that composite photography was an art

form as well as a science. Indeed, composite photography was a perfect bridge

between the 'two cultures' in that, for Galton, they used the objectivity and

precision of statistics to produce idealized forms, which, in Galton's neo-classical

mind, was the greatest achievement of the visual artist. Indeed, according to

Galton, composite photography showed that the scientist was the superior artist—

because the scientist worked exclusively in the realm of the objective and was not

tainted by the subjective. Furthermore, statistics, especially 'pictorial statistics,'

were—in their ability to create purified abstractions—the ideal art form. In 1878,

Galton explained:

> A composite portrait represents the picture that would rise before the
> mind's eye of a man who had the gift of pictorial imagination in an exalted
> degree. But the imaginative power even of the highest artists is far from
> precise, and is so apt to be biased by special cases that may have struck
> their fancies, that no two artists agree in any of their typical forms. The
> merit of the photographic composite is its mechanical precision, being
> subject to no errors beyond those incidental to all photographic
> productions. (qtd. Pearson, Vol. II 286)

Galton describes his 'scientific' photography as perfecting the work of the painter.

If the artist, as Galton saw it, were "pre-eminently distinguished by their gifts of

generalisation" and that "they are of all men the most capable of producing forms

that are not copies of any individual, but represent the characteristic features of

classes" (qtd. Pearson, Vol. II 296), then the composite photograph mastered the art of painting.

Galton's aesthetic of generalization also applied, as he stated in 1881, to the "artistic touching" of "beautifully idealised family portraits" that "might be produced for commercial purposes; the irregularities of the individual disappearing" (qtd. Pearson, Vol. II 290). As a statistician, he was, by his own admission, obsessed with ridding the image—and so the future of the race—of irregularity and insisted that any attempt to compose "generic portraits out of heterogenous elements" would end up with a "monstrous and meaningless" result (qtd. Pearson, Vol. II 295). His composite photographs, as with his eugenic theories, advocated the reproduction of superior resemblances, which was also a process of standardization—a kind of commodification of the body for public consumption. For now, we might think of Galton's aesthetics of generalization and/or *standardization*, especially as it relates to his appreciation of classical art, as echoing Hayles's concept of 'the Platonic backhand and forehand', which she contends plays an important role in the post- and transhuman formation of the information/materiality hierarchy in the twentieth century. But her concept might also be applied earlier to Galton's penchant for framing the world in statistical abstractions.

As Hayles points out, abstraction is a necessary part of all theorizing. Problems only occur "when we make moves that erase the world's multiplicity," at which point "we risk losing sight of the variegated leaves, fractal branchings, and particular bark textures that make up the forest" (12), in other words, when

we move away from Darwin's tangled bank towards Galton's sanitized techno-

garden. Hayles description of the troubling 'Platonic backhand' applies perfectly

to Galton's work in composite photography:

> The Platonic backhand works by inferring from the world's noisy
> multiplicity a simplified abstraction. So far so good: this is what theorizing
> should do. The problem comes when the move circles around to constitute
> the abstraction as the originary form from which the world's multiplicity
> derives. Then complexity appears as a 'fuzzing up' of an essential reality
> rather than as a manifestation of the world's holistic nature. (Hayles 12-
> 13)

Galton's aversion to 'fuzzing up' his portraits with 'monstrous' and 'meaningless'

heterogenous elements suggests that Galton's form of realism is akin to the

posthuman Platonism Hayles describes as still haunting twentieth-century

cybernetics.

Her description of the 'Platonic forehand' provides even richer

connections between Galton's eugenic posthumanism and our own. Hayles writes:

> Whereas the Platonic backhand has a history dating back to the Greeks,
> the Platonic forehand is more recent. To reach fully developed form, it
> required the assistance of powerful computers. This move starts from
> simplified abstractions and, using simulation techniques such as genetic
> algorithms, evolves a multiplicity sufficiently complex that it can be seen
> as a world of its own. The two moves thus make their play in opposite
> directions. The backhand goes from noisy multiplicity to reductive
> simplicity, whereas the forehand swings from simplicity to multiplicity.
> They share a common ideology—privileging the abstract as the Real and
> downplaying the importance of material instantiation. When they work
> together, they lay the groundwork for a new variation on an ancient game,
> in which disembodied information becomes the ultimate Platonic Form. If
> we can capture the form of ones and zeroes in a nonbiological medium—
> say, on a computer disk—why do we need the body's superfluous flesh?
> (Hayles 12-13)

While it may be true that the 'Platonic forehand' requires powerful computers to

develop *fully*, it is also true that the Platonic forehand was under development, or

at least finds a clear echo, in the push for "simulation techniques" and "genetic algorithms" embedded in Galton's eugenic theory. Galton breaks down the world into abstractions, as with his composite portraits, and then, like a computer programmer, seeks to replicate or simulate these forms, building new utopian worlds of multiplicity, through the only means available to him in the Victorian era: a very rational form of genetic transmission through sexual reproduction.

Galton simplifies the world in order to multiply one of eutopian, [72] rather than Darwinian, multiplicity. For Galton, the 'complexity' created through family databanks designed for eugenic reproduction would be much more akin, in its 'realism,' to the science fictional worlds we examine in *A Thousand Years Hence*, or in his own *Kantsaywhere*, than in the more Darwinian ecologies on display in the novels of George Eliot and Thomas Hardy, or even in the richly materialized biological worlds of H.G. Wells.[73] *Galton's preference is ultimately, after the biological generation of superior subjects, for the fixed or static, and so universalized, posthuman subject rather than for the more dynamic, autonomous, liberal human subject so popular in Victorian culture.* Galton's 'advanced' society was always one, like that of the ideal posthuman computer age society of

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[72] I am using the term "eutopia" here in its classical sense, meaning 'good place', but also as a play on the mix of eugenics and utopia described in the works of Wells and other late Victorian science fiction/utopia writers. The *Oxford English Dictionary* defines "eutopia" as a "region of ideal happiness and good order."

[73] For more on the Darwinian realism of these authors' novels, see two classic studies: Beer's *Darwin's Plots* and and George Levine's *Darwin and the Novelists*. That is not to say, however, that Victorian information technologies, such as the telegraph, did not have a profound effect on Victorian fictional realism. In *Telegraphic Realism*, Richard Menke makes a strong argument that "for authors as disparate as Brontë, Elizabeth Gaskell, and Charles Dickens, telegraphy offered a means of thinking about the juncture of reality, materiality, and textuality in fiction—a means of considering what critics since the late nineteenth century have called realism—even before many telegrams began arriving in novels" (70).

the twentieth and twenty-first centuries, that privileged "the abstract as the Real" and downplayed "the importance of material instantiation," yet without the help, in the Victorian era, of the computer disk. It was the ghostly 'purity' of abstraction—the lack of embodied particularity and dynamism—which Galton needed to help the human race avoid Darwinian extinction.

Galton's translation of the embodied individual into a mechanical type— turning from the real to the abstract—also reflects recent concerns about the invasiveness of posthuman technologies. Lev Manovich discusses Galton's work on composite photography, for instance, in *The Prosthetic Impulse: From a Posthuman Present to a Biocultural Future*, where he argues that Galton's techniques express a desire to "externalize the mind" (205) and that composite photography itself is "a machine for the externalization of ideas" (206). He argues that Galton's technological 'types' are suggestive of the phrenological demands of "modern mass society for standardization" (205). Manovich's argument, when applied to Galtonian technology, hooks Galton's eugenic subjects up to posthuman ideology, and highlights the need for a path to resistance against potential abuses by the new corporate state. Although Manovich is not specifically discussing eugenics here, his language implies a eugenic subtext. Galton's subjects, like cyborg subjects, have to be standardized through already standardized means—and Galton spent long periods of his career standardizing the instruments, formulas, and methodologies in support of eugenics—and thus once such eugenic subjects have been standardized they become, in Galton's utopian ideal, objectified and essentially made public. The posthuman subject,

like the eugenic subject, is essentially a public subject, and hence vulnerable to surveillance and regulation. The posthuman subject, like the eugenic subject, is a known, and so highly controlled, being.

Hence, within posthuman futurology, so similar to Galton's Victorian speculations, these newly cognitive or neo-intelligent subjects become both the surveyor and the surveyed, the spy and the information, the voyeur and the spectacle.[74] In postmodern science fictions, such as Philip K. Dick's *Do Androids Dream of Electric Sheep?* and Gibson's *Neuromancer*, the posthuman, like Galton's eugenic composites, are, either prohibited from a private mental world or else that inner-ness and privacy are constantly under threat. The subjects' thoughts must be translated into "external visual forms" (205). Such is the case with both the posthuman and with Galton's eugenic subjects. As Mark Seltzer has put it, in his discussion of Galton's composites as a prefiguration of cyborg concerns, "What the conversion of individuals into numbers and cases and the conversion of bodies into visual displays correlate are two of the crucial control-technologies of machine culture: statistics and surveillance" (100). Seltzer makes the further point that the counted, calculated, and measured body—the data-processed body—is the ideal body for circulating smoothly, without political resistance, through a social machinery set up for the benefit of the ruling elites within the corporate (or techno-eutopian) state. Furthermore, these subjects eventually cease to be coerced as they reproduce new subjects that, within the more Galtonian posthuman visions, are socially made through information, thus

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[74] See also Galton's *Finger Prints* (1892).

spawning a new, immortal, and virtual subject whose patterns are processed and predicted— like those of the gridded external 'reality' around them—from the time of booting to that of rebooting.

March 31, 1910. Sir Francis Galton is on the ground floor of his house at 42 Rutland Gate staring at his profile in a looking glass. With a copy of George Dance's *Collection of Portraits Sketched from Life and Engraved in Imitation of the Original Drawings* by his side, he takes his finger and deliberately traces a line, as if connecting dots, from the notch between his brow and nose, the tip of his nose, the notch between his nose and the upper lip, the parting of his lips, and finally he points to the tip of his chin.

"Four-word portraits," he mutters to himself as he pulls a blanket over his bent and feeble knees.

He leans back in his chair, grimacing.

"Gifi!"

Galton's servant of more than 40 years appears in the doorway.

"Can you move me closer to the fire, Gifi? I am having another bout with the rheumatic cramps . . ."

Gifi wedges Galton closer to the fire where the elderly man—mutton chops now white and blue eyes faded—takes out the proofs for his new article for *Nature*.

Gifi reads the title aloud at Galton's request. "'Numeralised Profiles for Classification and Recognition,' I think it says, sir."

Galton points to another passage. Gifi reads:

"This skeleton serves as an excellent basis for the classification of profiles," he reads. "Peculiarities of profile, as racial or family characteristics, can be expressed numerically by an extension of this system in a way that promises to be serviceable for eugenic records."

"You see, Gifi, the idea," says Galton, "is to telegraph the profiles. To create a lexicon or dictionary of profiles which might be used for eugenic records or to catch criminals and so on. The human face will be transcribed into a numerical formula and telegraphed to a person on the other hand who will trace, draw, outline the skeleton from the 'four-word' portrait."

Gifi nods and puts his hands to his own twitching and expressive face.

"Can't say as it sounds like a bad idea, sir, except half my family don't look like each other and they only looks like themselves, sir, when they be twitchin'."

Galton stops reading and stares at his servant of forty years; he starts to jot down lists of dots and dotted lines, hyphens, oblique lines, and isolated points on the back of his paper.

"That's you Gifi. That's your profile."

Gifi raises an eyebrow.

"Let's start with you, Gifi. Let's start with telegraphing you."

2

'WHAT A GALAXY OF GENIUS MIGHT WE NOT CREATE!': TAKING STOCK OF GALTON'S EUGENIC CODE

I have been conscious of no slight misgiving that I was committing a kind of sacrilege whenever, in the preparation of materials for this book, I had occasion to take the measurement of modern intellects vastly superior to my own, or to criticise the genius of the most magnificent historical specimens of our race. It was a process that constantly recalled to me a once familiar sentiment in bygone days of African travel, when I used to take altitudes of the huge cliffs that domineered above me as a I travelled along their bases, or to map the mountainous landmarks of unvisited tribes, that loomed in faint grandeur beyond my actual horizon.
Galton, *Hereditary Genius* p. 65

It is late in the evening of November 24, 1859. Samuel Smiles' *Self-Help* has just appeared in London bookshops. Galton has been sitting in his study for many hours now, devouring the contents of another book, published the same day, but which was not as popular. His eyes are rimmed red; he stretches as the clock hits midnight. He closes the book and flips to the frontispiece which reads *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*.

"Charles, you have outdone yourself," Galton sighs and holds the book to his chest. "It really is a fine piece of science. What a beautiful theory!"

It would take him more than a week, however, to track his cousin's evolution as a naturalist. He takes copious notes as he reads, marking particularly Darwin's erroneous statement about the rhinoceros.

"They *are* vulnerable to beasts of prey! In Africa I witnessed dogs pursue young rhinoceri," he mutters as he scribbles in the margins.

By December 9, the *Origin* is being talked about in the rooms at the Atheneaum. Galton sends for Louisa to bring him his stationery. He must send a letter of praise to Down House:

> Dear Charles—Pray let me add a word of congratulations on the completion of your wonderful volume, to those which I am sure you will have received on every side. I have laid it down in the full enjoyment of a feeling that one rarely experiences after boyish days, of having been initiated into an entirely new province of knowledge…

In the days before Christmas, however, with the *Origin* still fresh in his mind, Galton rambles through the streets of the East End. As the implications of his cousin's theory settle in, he grows downcast.

His colleagues have taken to calling this part of the town the 'residuum'. Grizzled paupers, covered in rags, litter the blackened streets. Hatless prostitutes wink at him from the doorways as they flash a bit of ankle. Children roam the alleys begging, pickpocketing, or scrounging for scraps. Through the grimy windows, he watches lonely mothers suckle naked babies.

"They should never have been born," Galton whispers to the night.

As he moves into the West End, the scene changes dramatically. Fat men in top hats alight from embossed chariots. Gloved ladies glide by in a swoosh of oriental silk. The rush of decaying faces blurs the signs of disease. Scrofula is rampant in this class. So is short-sightedness. He watches a lady squint. Her eyes are a little crossed. She is carrying *Laura Gay* in her satin hand; pearls drip from her wrists.

Galton draws a conclusion. The British race, and so the entire human species, is degenerating toward extinction.

He shudders and follows the fog home, fumbling with the calculator in his pocket.

By 1865, Galton had finally come up with what he thought was a suitable response to the theory that had "made a marked epoch on my own mental development, as it did human thought generally" (*Memories* 287)—a theory that, as we shall see, actually made him rather anxious. In "Hereditary Talent and Character," which he published in *Macmillan's* that year, Galton draws the first outline of his plan to control Darwin's evolution, or at least evolution as applied to humans—and so avoid the inevitable spectre of species annihilation implied by Darwin's theory—through the conscious breeding, or what Richardson has called the "rational reproduction," of advantageous mental traits in order to statistically produce a purely intellectual and immortal class of eugenically codified souls, i.e., a class of Victorian posthumans.

Galton's eugenics theory thus challenges the orthodox approach in Victorian studies that the era can be exclusively defined by its preoccupation with, and production of, the liberal humanist subject. Galton was busy producing Victorian cyborgs through a project that connects him more strongly with our time than his own in a case of what Clayton calls an "uncanny return" or historical cultural "reemergence" (40). This chapter makes the case that Galton's theory posthumanizes Carlyle's Great Man in a post-Darwinian attempt to reproduce eugenically, through species transmutation, a new elite, a new breed of geniuses that ultimately seeks to transcend biology, and whose boundaries

eventually dissolve into genealogical flows of information. These flows of

information eventually make up a unified oneness, akin to Gibson's Wintermute,

or, as Pearson called it, a quasi-Buddhist form of ancestor worship and

enlightenment.

As a post-liberal-human, I am again playing the role of cultural

genealogist, tracking the lines, or links, of descent between posthumanism and

one of its sources in Galton's eugenics. I sequence the proto-DNA of the

posthuman subject as it is first generated and encoded within eugenic ideology

and show how we are all becoming the posthumanous designer babies of Galton's

eugenical dreams.

Galton had developed his plan by applying the well-established principles

of animal husbandry, discussed in Darwin's chapter on "Variation under

Domestication" (*Origin* 73), to human reproduction. In the opening salvo of

"Hereditary Talent and Character," he declares that "the power of man over

animal life, in producing whatever varieties of form he pleases is enormously

great" (157). He later speculates, apropos the title of this chapter, that "if a

twentieth part of the cost and pains were spent in measures for the improvement

of the human race that is spent on the improvement of the breed of horses and

cattle," then "what a galaxy of genius might we not create!" (165). Although it

would take him another two decades, in 1883, to name his program for selective

human breeding "eugenics," even at this early stage Galton had replaced, or at

least supplemented, his cousin's narrative history of natural selection with his own, more utopian and futurological, speculations on artificial selection.

Galton's eugenics program was posthuman because it relied on Victorian forms of informatics (data translation, storage, and transmission) from the quantification of genealogies and auto/biographies to the early use of IQ-like tests, based on the Cambridge model of examinations, as a method for collecting and collating numbered mentalities for replication and, Galton hoped, regeneration; today, we might call this genetic modification. Galton's plan also called for the scientific engineering of new, informational forms of the human subject. In a moment of what Jay Clayton calls "historical disjunction" (20), Galton's culturally important yet oddball eugenics theory seems to at least outwardly ignore—or run parallel to—the emergence of what was then the most popular model for a (self)-improving subject: the liberal human. Galton, at first glance, seems to avoid the production/education of this liberal self by favouring the eugenic generation of subjects whose behaviour was pre-ordained, rather than self-actualized, by the transmission of codes or traits, such as intellect, which could only be identified or accessed through statistical analysis, decoding, and data processing.[75] Galton's new subjects—the first proto-posthumans—would eventually become generational stores and flows of information (Hayles 84).

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[75] I conflate production/education because the liberal subject is one that needs to be educated into existence. A liberal subject does not exist until it has gone through some sort of personal development. It is, by definition, dynamic within its own lifetime. Galton's posthuman subjects, however, are dynamic through time—they change through the generations—but are *eventually* made static within static utopias. Galton ultimately wants them to reach a point of Edenic stasis.

Yet there is a central tension in Galton's eugenics research that complicates the divide between the Victorian liberal human and posthuman subjects. As with many twentieth-century cyberneticists,[76] Galton's posthumanism begins by being deeply informed by liberal humanist values—the belief in "a coherent, rational self, the right of that self to autonomy and freedom, and sense of agency linked with a belief in enlightened self-interest" (Hayles 86). In *Hereditary Genius*, for example, Galton constructs a definition of "natural ability" that is unmistakably inflected with the liberal belief in an intelligent man's ability to use his free will to accomplish great things:

> By natural ability, I mean those qualities of intellect and disposition, which urge and qualify a man to perform acts that lead to reputation. I do not mean capacity without zeal, nor zeal without capacity, nor even a combination of both of them, without an adequate power of doing a great deal of very laborious work. But I mean a nature which, when left to itself, will, urged by an inherent stimulus, climb the path that leads to eminence, and has strength to reach the summit—one which, if hindered or thwarted, will fret and strive until the hindrance is overcome, and it is again free to follow its labour-loving instinct. (77)

Here Galton's eugenic genius is, above all, a man endowed with an indomitable Protestant work ethic. Although Galton's heroes may not be thoroughly self-written on blank slates—as Samuel Smiles' are in *Self-Help*, for instance—they are individuated producers. They are a "labour-loving" and motivated breed of intelligent individuals—*Hereditary Genius* provides many examples of such "illustrious" and "eminent" men (and even some women)—whom Galton feels must themselves be reproduced in order for Britain to avoid being dragged into degeneracy. According to Galton, "The needs of centralisation, communication,

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[76] See Hayles's chapter on "Liberal Subjectivity Imperiled: Norbert Wiener and Cybernetic Anxiety" in *How We Became Posthuman*, 84-113.

and culture, call for more brains and mental stamina than the average of our race possess" (*Hereditary Genius* 400).

Moreover, Galton's early thoughts on genius intersect at times not only with Carlyle but also with John Stuart Mill. All three eminent men look to the figure of the genius, or Great Man, to lead Victorian society out of its state of mediocrity and degeneracy. For the decidedly undemocratic Carlyle, these genius heroes of history are meant to be worshipped and obeyed. For Mill, these mentally superior ("On Liberty" 68), "well-developed human beings" (65) of strong character, these naturally original heroes, are to be cultivated in richly diverse, almost Darwinian, soil (67) rather than rationally purified and reproduced as Galton would have it. And yet there is an overlap of vision between these two philosophical opposites (the former believing almost wholly in nurture and the latter in nature) in the Victorian faith in "persons of Genius" (66) and even in certain personal qualities—such as superior mental faculty, energy, and originality—that geniuses possess. As Mill puts it, "these few are the salt of the earth; without them human life would become a stagnant pool" (66). For Mill, these special individuals drive social progress and improvement away from "collective mediocrity" (68):

> No government by a democracy, or a numerous aristocracy, either in its political acts or in the opinions, qualities, and tone of mind which it fosters, ever did or could rise above mediocrity, except in so far as the sovereign Many have let themselves be guided (which in their best times they always have done) by the counsels and influence of a more highly gifted and instructed One or Few. (68)

Yet Mill is also quick to note that he, unlike Carlyle, whom he is no doubt directly addressing, but also Galton, believes in the initiative and capabilities of the

average man once well-instructed by such geniuses (68). Mill, as he argues in "On Liberty," does not countenance "hero-worship" (68) which "applauds the strong man of genius for forcibly seizing on the government of the world and making it do his bidding in spite of itself" (68-69).

Indeed, the relationship between Galton's eugenic genius and Mill's individual genius ends rather abruptly—perhaps close to the point where Mill's genius becomes a self-actualizing liberal human and Galton's a eugenic reproduction—and yet at this stage Galton still believes enough in the individual to ally him with Mill.[77] Yet Galton's geniuses, no matter how exceptional or eccentric or non-conformist in reality (see many of the examples in *Hereditary Genius*)—qualities Mill regarded highly—ultimately had to numerically conform and assimilate into a statistically-derived and highly conservative, orthodox, and bureaucratic utopia.

In addition, Galton and Mill had clearly opposing views on the relative influence of nature and nurture on individuals but also, interestingly, on the merits of the new machine-like man.[78] Mill felt that a blind obedience to custom turned men into cattle or, alternatively, into machines. In "On Liberty," he rails against the tendency of "best beliefs and practices to degenerate into the mechanical" (66) because of the absence of original thought. Galton, on the other hand, accepts, and

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[77] Mill spends a surprising amount of time in *On Liberty* discussing "personal endowment" and the individual's "nature" (63).
[78] Indeed, it is fascinating to read Galton's *Memories* alongside Mill's *Autobiography*, the former elite and privileged Victorian so thoroughly raised in the tradition of natural genius and heredity— as per his family lineage (although education plays a bigger part than he suggests)—whereas the latter is thoroughly raised by his father, James Mill, to believe in nurture holding precedence. Indeed, James Mill deliberately set out to cultivate his son as a genius—a fact which led to his later mental breakdown and depression (an ailment Galton, as we have seen, also suffered from).

even celebrates, man's machine-like behaviour in his 1884 *Mind* article on "Free-

Will," but more on this in a moment. Indeed, the fascinating similarities and

differences between Galton and Mill might best be illustrated with the following

passage from Chapter Three of "On Liberty:"

> Among the works of man, which human life is rightly employed in
> perfecting and beautifying, the first in importance is surely man himself.
> Supposing it were possible to get houses built, corn grown, battles fought,
> causes tried, and even churches erected and prayers said, by machinery—
> by automatons in human form—it would be a considerable loss to
> exchange for these automatons even the men and women who at present
> inhabit the more civilized parts of the world, and who assuredly are but
> starved specimens of what nature can and will produce. Human nature is
> not a machine to be built after a model, and set to do exactly the work
> prescribed for it, but a tree, which requires to grow and develop itself on
> all sides, according to the tendency of the inward forces which make it a
> living thing. (61)

Both Galton and Mill are "rightly employed in perfecting and beautifying" the

human form and human nature. In other words, both Galton and Mill are deeply

embedded in the enlightenment ideology of self and social improvement, but Mill

is centrally concerned throughout "On Liberty" with cultivating and celebrating

"desires and feelings" and all that is richly, complicatedly, and bodily human—

rather than subjecting these human impulses to what Mill describes as the yoke of

received opinion and social repression. For Mill, man is organically rooted like a

tree and should be free to grow and flourish, however eccentrically, in his soil.

One cannot help but notice how this tree metaphor at the heart of "On Liberty,"

taken alongside Mill's belief in diversity as at the heart of human progress (or

human evolution?), aligns him much more strongly with Darwin than with

Galton. Galton calmly accepts how his own proto-posthuman identity resembles an automaton.[79]

For Galton, unlike Mill, the genius's "energy," his work ethic, is not cultivated but mechanically inborn. While Galton's eugenic heroes may at first appear to be exercising free will, it is soon clear that whatever talents they possess are not within their power to control; they come from nature, not nurture. They obediently follow, as Galton put it above, an "inherent stimulus" like a fever in the blood. The hero's virtuous acts—stimulated by his intelligence—are, ironically, more the result of instinct and force of habit than any individual determination or perseverance (with these latter qualities revered by the liberal humanists). Thus, Galton's hero is as much a cousin to Carlyle's Great Man as he is to Mill's Liberal Human. Carlyle's heroes are born elite. He reveres the hero as a "natural luminary shining by the gift of Heaven; a flowing light fountain, as I say, of native original insight, of manhood and heroic nobleness" (*On Heroes* 2). In other words, Carlyle's hero, as opposed to Mill's, is a blue-blooded aristocrat.

Given Galton's privileging of nature over nurture, then, it should be not be surprising that in his 1884 article on "Free Will—Observations and Inferences," he concludes—after performing experiments or "introspective inquiries" (406) on himself—that humans, including himself, are more mechanistic than they seem. He observes that "the occasions seemed rare in which there seemed room for the

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[79] "On Liberty" was published in the same year as the *Origin* so these two contemporaries are at times drawing intriguingly similar cultural conclusions, from similar cultural discourses, even while working in vastly different intellectual areas.

exercise of Free-will" (407); indeed, Galton calculated that he exercised his

autonomy on average less than once a day. "I believe however," wrote Galton,

"that, if I had undertaken the inquiry in youth, when the number of my past

experiences was only a fraction of what they are now, I would have found it much

less easy to persuade myself of the frequency with which I act as an automaton"

(408). Galton here begins his break from both Carlyle and Mill, turning from the

Great Man and the Liberal Human, or else mating them with, the posthuman.

Here is where we first see the shift.

Throughout Galton's work, intelligence becomes synonymous with

instinct. It *is* instinct. The term is detached from its liberal humanist roots—as a

concept involving the successful expression of an individual's free will in

decision-making processes—and becomes a more measurable, scientific concept.

I would argue that we could identify this shift as one from intelligence to

cognition. Indeed, in Galton's work "intelligence," or "genius," or "natural

ability" (terms he uses interchangeably) becomes a measurable quantity that

might be stored and transmitted within the body (although Darwin and Galton, in

the days before Mendel and the genetic code, had little idea how heredity actually

worked).[80] Galton never, of course, codified intelligence as a product of DNA—

that would take several more decades—but he does turn the abstract concept into

a fixed, stable, and measurable quantity, which is why his work has been so

important over the last century to intelligence researchers. Galton, like these

researchers, needed intelligence to become measurable data in order to prove his

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[80] See Gillham's chapter on "Gemmules, Rabbits, Germs, and Stirps" in *A Life of Sir Francis Galton*, p. 173-187.

ultimate argument: that intelligence was inherited. That concept would help him sell his eugenics cause.[81]

After all, post-enlightenment humans thought that reason separated them from the animals. Intelligence was the holy grail of human traits. It was the trait which—whether God-endowed and related to the soul or naturally evolved and related to the body—allowed humankind to dominate the elements and lord over the other creatures in the natural world for either 4,000 or four billion years, depending on whether you were of a religious or a secular persuasion. Of course, according to social conservatives like Galton, humanity's intelligence was also what got the species into trouble, helping to think up absurd (and liberal) ideas such as charity and even sentimentally allowing these low types to reproduce.[82] But it would also be intelligence that kept humankind from falling into Darwinian, and *fin-de-siécle*, decay. Thus, Galton urgently makes the argument in "Hereditary Talent and Character" that mental as well as physical traits could be inherited: "It would seem as though the physical structure of future generations was almost as plastic as clay, under the control of the breeder's will. It is my

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[81] Galton had his critics, however. Frank Challice Constable may have been thinking of Darwin when he offered this response to Galton in *Poverty and Hereditary Genius* (1905): "The intellect of each and every man is made up of almost infinite complexities; it consists in each case of a particular consensus in the particular individual of almost infinitely varying, possibly differing, inherited complex powers. It is the particular consensus in any individual which constitutes his natural ability, patent or latent" (106).

[82] Darwin would famously make the argument that altruism was an inherited and naturally selected trait, beneficial to the tribe if not to the individual. According to Darwin, in the *Descent of Man*, "There can be no doubt that a tribe including many members who, from possessing in a high degree the spirit of patriotism, fidelity, obedience, courage, and sympathy, were always ready to give aid to each other and to sacrifice themselves for the common good, would be victorious over most other tribes; and this would be natural selection" (166).

desire to show, more pointedly than—so far as I am aware—has been attempted before, that mental qualities are equally under control" (157).

It is significant, however, that in order to prove his point—that intellect was inheritable—Galton needed to make a move towards posthumanism: to show that intelligence was instinctive, a force of habit, and that intelligent humans, not just Marx's workers, were automatons. Intelligent humans were, in our parlance today, robots or computers to be programmed. Moreover, as they became machines, Galton's intelligent workers were fast becoming, like Marx's factory workers, commodities with data-banked skills to be accumulated, stored, and transmitted as 'stock' to the next generation. Good stock would guarantee financial and social (if not moral) success. To some extent, good stock meant, as it does now, goods in reserve and shares representing investment-sound money; genetic health meant material wealth, and under the capitalist ethos of high-finance, everyone was equally objectified, including elitist geniuses. According to Galton, "man is little more than a conscious machine, the larger part of whose actions are predictable" (412).[83]

Such objectification would lead to the ultimate breakdown of the self in Galton's work and move him towards a more indeterminate, poststructuralist, and posthuman concept of the subject. It is in his 1884 article on "Free Will" that we first see the subject fragmenting—where we see him making the penultimate move away from Carlyle's Great Man and Mill's Liberal Human, although these

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[83] Galton's use of the term "conscious machine" echoes T. H. Huxley's use of "conscious automata" in *On The Physical Basis of Life* (1870). Huxley first gave a lecture on that subject in Edinburgh in 1868.

are still in the Victorian posthumans' DNA, towards Picasso's *Les Demoiselles d'Avignon* (1907). In Galton's work, the subject is deconstructing (as it would soon be elsewhere):

> I suspect that much of what we stigmatise as irresolution is due to our Self being by no means one and indivisible, and that we do not care to sacrifice the Self of the moment for a different one. There are, I believe, cases in which we are wrong in reproaching ourselves sternly, saying, 'The last week was not spent in the way you now wish it had been,' because the Self was not the same throughout. There is room for applying the principle of the greatest happiness to the greatest number; the particular Self at the moment of making the retrospect being not the only one to be considered. (409)

With this statement, clearly a response to Bentham and Mill, Galton's genius-hero has not only become an automaton but the boundaries of his selfhood are deliberately dissolved into the postmodern concept of the many selves.

To show in more detail how this works, I now turn to the idea of the genealogy—used here in the Nietzschian/Foucauldian sense as a "counter-history" but also in the Galtonian sense of family history—that led to the evolution of the term as it is now understood, as 'genetic genealogy': the storage and transmission of family history and memory as information. Although the history of genealogies can be traced back to ancient myth and the Bible, they have historically been used, since the sixteenth century in the West, as a method for asserting—through the tracking of 'bloodlines' and the biographies of elite ancestors—the legitimacy of aristocratic claims to power. But by the nineteenth-century—although the nobility were further codifying their status in peerages such as Debrett's and Burke's—the family tree was reaching beyond the human

realm and planting roots in the natural world as it became a metaphor for the descent of species, or evolution.

As such, the genealogy during this period becomes implicated, early on, in dissolving, as a construct, what was previously perceived to be the fixed and stable boundaries distinguishing species and, by implication, humans from animals, not to mention (liberal) humans from each other. Moreover, these new organic genealogies did so just as the liberal human reached its apex as the model for subjectivity within Victorian culture—explaining at least some of the anxiety that followed the publication of the *Origin*. *Fin-de-siècle* fears, for example, about the stability of the human subject, as Kelly Hurley notes in *The Gothic Body*, were most horrifically, and exuberantly, expressed in the speculative gothic genre:

> The Darwinian narrative of the evolution of species was a narrative within which any combination of morphic traits, any transfiguration of bodily form, was possible. Species integrity was undone and remade according to the immediate, situational logic of adaptation to environment . . . Darwinism opened up a space wherein hitherto unthinkable morphic structures could emerge. (6)

Darwin's Tree of Life, in particular, became a powerful metaphor for these naturally selected transfigurations, ironically echoing, in its DNA, the Biblical Tree of Knowledge as the *Origin* reformulates the originary myth of Genesis, creating an anti-Eden with his biocentric tangled bank.

The Tree of Life, as a genealogy, re-imagined history—with natural selection as the engine of biological change—as non-teleological and even haphazard; it celebrated impurity by valuing such concepts as hybridity, abundance, monstrosity, entanglement, and interdependence—in other words, the "infinitely complex" (*Origin* 100). As Gillian Beer argues, Darwin's *Origin*

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embodied a "romantic materialism" (*Darwin's Plots* 37) that emphasized the vulnerability and finite nature of the animal body: "Evolutionary theory emphasised extinction and annihilation equally with transformation—and this was one of its most disturbing elements, one to which gradually accrued a heavier and heavier weight in consciousness" (17). Thus, the Tree of Life, with its stray and capricious branching out and breaking off, symbolizes the inevitable extinction of classes, groups, and species alongside the generation of new ones: "As buds give rise by grouse to fresh buds and these, if vigorous, branch out and overtop on all sides many a feebler branch, so by generation I believe it has been with the great Tree of Life, which fills with its dead and broken branches the crust of the earth, and covers the surface with its ever-branching and beautiful ramifications" (*Origin* 144). It is a model for renewal and redemption, to be sure, but for Darwin the renewal and redemption comes first from the mulch of death.

In "Hereditary Talent and Character," *Hereditary Genius*, and *English Men of Science*, and in countless other articles he wrote in the unsettling wake of the *Origin*, Galton trims Darwin's Tree of Life of its dead branches and digs its roots out of the mulch. As Pearson writes, "The garden of humanity is very full of weeds, nurture will never transform them into flowers; the eugenist calls upon rulers of mankind to see that there shall be space in the garden, freed of weeds, for individuals and races of finer growth to develop with the full bloom possible in their species" (Pearson *Life* Vol. II 220). Galton's calculated genealogies, which hark back to aristocratic (and perhaps Biblical) pedigrees, weed evolution through a form of information-processing linked to the statistical manipulation of

quantifiable hereditary traits, a process akin to genetic engineering today.

Galton's eugenics theory—based on the data-regulated transmission of minds

cleansed of bodies (inside a new mind-body dualism)—formulated an *antibody* to

Darwin's embodied disharmony (Paradis 105). The study of heredity itself

becomes a way of edulcorating Darwin's evolutionary theory, with all its

labyrinthine materialism; Galton seeks to untangle the tangled bank.

Eugenics does not find its literary echo in the gothic, which Hurley

discusses as part of the *fin-de-siécle* "ruination of the human subject" (3):

> In place of a human body stable and integral . . . the *fin-de-siécle* gothic
> offers the spectacle of a body metamorphic and undifferentiated in place
> of the possibility of human transcendence, the prospect of an existence
> circumscribed within the realities of gross corporeality; in place of a
> unitary and securely bounded human subjectivity, one that is both
> fragmented and permeable. (3)

Eugenics—which, as we shall see in the next chapter, finds its most resounding

echo in utopian fiction—does not ruin the subject *per se* but more often calls for

its perfection through dissolution. While both evolution and eugenics question the

integrity of the human subject, eugenics calls for new transcendent subjects to be

built from an already evolving, and so "fragmented and permeable," species.

Galton's desire to move away from the "gross corporeality" at the heart of

evolutionary theory is what connects him most to the posthumanists of the digital

age. Hurley's "abhuman" becomes a post-abhuman, meaning that it becomes a

"not-quite-human subject" with its morphic teleology rather than its "morphic

variability"; nonetheless, like the gothic abhuman, Galton's eugenic posthuman is

"continuously in danger of becoming not-itself, becoming other" (3).

If Galton begins with the liberal human, repopulating the aristocratic peerages, and even Darwin's Tree of Life, with a new, biotechnological—yet stable and bounded—elite, his eugenic endgame is to create subjects no more "unitary and securely bounded" than the gothic bodies of Hurley's *fin-de-siécle* horror fiction. The historical subjects, whether Alexander the Great or Isaac Newton, of Galton's eugenic genealogies are *carriers* of hereditary stock rather than individuated humans. He was more interested in the overall intellectual quality of the social stock—not figured for Galton in terms of the size of the material object of the brain—than with the size of an individual's estate.

Natural intelligence, then, could be accumulated—manufactured through 'rational reproduction,' data-processed, and bio-engineered—within populations as a general commodity, as genetic wealth, a bankable good for the whole species, whereas aristocratic bloodlines, and, most important, the nobility's land and titles, were passed on only for the good of one class or, more precisely, a few noble families whom Galton argued were rapidly degenerating. He notes, for example, that "in civilized society money interposes her aegis between the law of natural selection and very many of its rightful victims. Scrofula and madness are naturalised among us by wealth. Short-sightedness is becoming so" ("Hereditary Talent and Character" 326). There seemed "no limit to the morbific tendencies of body or mind that might accumulate in a land where the law of primogeniture was general, and where riches were more esteemed than personal qualities" (326). In other words, inherited money did not always reflect a family's natural superiority, and the law of primogeniture was concentrating power in the hands of an 'inbred'

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elite that was, if anything, showing signs of genetic decline. According to Galton,

privilege needed to be assigned to the genetically and intellectually deserving so

that a new biologically meritocratic ruling class might lead the British race, and

the human species, away from the spectre of degeneracy. Of course, especially by

the turn of the century, Galton's eugenics cause was no doubt helped by its

pseudo-scientific support of 'new money' as the birthright of the genetically, if

not socially, superior elites in Britain and the United States.

Yet Galton remained inconsistent, even torn, in his view of the aristocracy,

at times reluctant to relinquish the socially entrenched belief in the innate

superiority of the old ruling class. In the same breath as he notes the degenerate

characteristics of nobles, he argues that they may have an edge in eugenic

selection, and that they may even be able to provide bloodlines—because of their

social advantages—for the formation of his superior race. He argues that there is

no "known limit to the intellectual and moral grandeur of nature that might be

introduced into aristocratical families if their representatives, who have such rare

privilege in winning wives that please them best, should invariably, generation

after generation, marry with a view of transmitting those noble qualities to their

descendants" (326). In this way, "inferior blood in the representative of a family

might be eliminated from it in a few generations" (326). It should not be

surprising, then, that the utopian world of *Kantsaywhere* sometimes resembles a

feudal kingdom populated with knights and ladies in the form of Carlyle's

aristocratic Great Men. Still, Galton's eugenic ideology did insist on a shift from a

nurtured to natural elite even if, in practice, the new privileged class resembled

the old. Galton insisted that inheritance go beyond the pursuit of short-term class interests; he wanted to create a species, or at least a nation state, and not just a class, of natural nobles or geniuses.

In order to investigate and evaluate the historical sources of his nation's natural inheritance, then—its wealth in terms of eugenic, rather than aristocratic, stock—Galton searched encyclopedias and biographical dictionaries such as Thomas Phillips' *The Million of Facts*, Walford's *Men of the Time*, and Lord Campbell's *Lives of Chancellors* for facts on the lives of individual, natural geniuses, which in Galton's prose often resemble an enumerated version of Carlyle's *On Heroes*. He then compiled these data-based 'lives' into elaborate genealogies, grouping together the progress of genius families for generations, listing certain genius family members' accomplishments, and attempting to demonstrate their intellectual links and inheritances, all without ever really considering the influence of the material and social privileges that paved the way for—or was inherited by—many of these families, including his own Galton-Darwin-Wedgwood clan. He focused instead on translating the messy, complex, and embodied lives of these prominent individuals into data for statistical calculations in support of his eugenics argument.

Galton's method, in other words, was to translate the Victorian auto/biography—the ultimate literary form for liberal humanist expression—into numbers and information. As George Levine states when discussing Galton's work, "statistics are designed to enable generalization, and they do so by blurring

individual differences" (117). As a result, Galton's eugenically 'special' humans, listed in "Hereditary Talent and Character," *Hereditary Genius*, and *English Men of Science*, end up flattened into generalizations for scientific arguments. Stories of the self are objectified as facts. The fascinating, complicated selves and lives of Charlotte Brontë or Alexander von Humboldt are distilled into algebraic formulations of X, Y, and Z as they pass through Galton's computational filter. Galton blends these fascinatingly inventive and unpredictable minds into the conformist language of eugenic stock accumulation.

As these geniuses blend together into families and into each other, their individual personalities dissolve. The entire project of *Hereditary Genius* is, in some respects, to reduce the singular minds of talented Britons to rows, charts, graphs, and tables of data much as Galton had simplified landscapes and bodies in *Tropical South Africa*. As he writes in the epigraph above, the minds of the vast intellects he measures constantly remind him of "bygone days of African travel" when he used to "take altitudes of the huge cliffs that domineered above me as I travelled along their bases, or to map the mountainous landmarks of unvisited tribe" (*HG* 65). The minds of his hereditary geniuses are figured as exotic lands to be measured, surveyed, and understood through calculations; his focus after 1865 merely changed from the data translation of external, spatial nature to the data translation of human interiorities for transmission through time.

Throughout his work, he seeks to dissolve, with every calculating tool at his disposal, the totality of the material world, internal and external, to information. In his genealogical models, individuals and families become bitmaps

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for hereditary transmission. As with his composite photography, the individual

becomes the metonym for the family and the species, all of which 'bleed'

together. According to Galton,

> The world is beginning to perceive that the life of each individual is in some real sense a prolongation of those of his ancestry. His character, his vigour and his diseases are principally theirs; sometimes his faculties are blends of ancestral qualities, more frequently they are aggregates, veins of resemblance to one or other of them showing now here and now there" (Galton; qtd. Pearson, Vol. II 302).

In Galton's world, the life of the individual ceases to exist independently and

begins to flow into channels through which genetic information is passed on for

generations; the Victorians became posthuman "aggregates," collections of

eugenic data. Moreover, Galton's pre-virtuality envisions the world and especially

the human as the product of sameness rather than difference. As "veins of

resemblance," Victorian humans take on the prefix 'post' as they lose, in Galton

view, the impurity—the hybridity, the abundance, the monstrosity—of Darwin's

model (which also focuses on interdependence, but in an entangled rather than

encoded way). They become purified through eugenic data translation, infinitely

resembling rather than infinitely complex.

In 1908, Galton, following many of the prominent scientists of his day,

including Darwin and Wallace, published his own autobiography, *Memories of

My Life*, in which he gives his own life history the same posthuman treatment as

he does the geniuses of "Hereditary Talent and Character," *Hereditary Genius*,

and *English Men of Science*. In other words, he attempts to transcribe his own

fascinating life and eccentric mind into data. He starts, appropriately enough, with

a genealogy. Of course his recounting of his family history, to begin his

autobiography, is conventional for the form; however, as Levine observes, the

way Galton presents his own "veins of resemblance" seems noteworthy:

> None of them is presented feelingly, and for most there is some cool
> indication of their accomplishments (oddly selected and enumerated), of
> their skills, and of their claims to fame. The paragraph about his father's
> elder sister, for example, ends with an abrupt sentence: "For more, see
> Dict. Nat. Biog." For an uncle who died young, Galton concludes: "There
> is a touching notice of him in the Annual Registry." (*Dying to Know* 115)

Levine seems baffled here by the oddness of Galton's style, seeing as it does not

fit the typical liberal humanist pattern of introspection and self-development at the

heart of other scientific autobiographies of the time (such as Darwin's or

Wallace's). The absence of posthumanist theory in his discussion prevents Levine

from fully naming Galton's move towards the "condition of virtuality" (Hayles

19)[84] even as his own analysis makes clear that such a move is happening. Galton,

in the above passage, seems to be almost asking us to click on the link for the

Dictionary of National Biography (which he does not even bother to spell out) or

the Annual Registry for more information on his relatives.

Galton's style is a sign of the emergence of a new information economy,

even the beginnings of a link economy, and he often seems to use his own 'dead

tree' books as information for browsing. Levine himself describes Galton's

memoir as virtually disembodied, as a "record of facts . . .tumbl[ing] over one

another without apparent formal or logical relations" (115). Galton's self-

representation is, as Levine notes, "almost statistical" (115); "everything is

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[84] Hayles argues that once "the impression is created that pattern is predominant over presence"
(19) and information is perceived "as more mobile, more important, more *essential* than material
forms" then "you have entered the condition of virtuality" (19).

discussed with an abrupt, staccato, fact-asserting economy. The prose is clinical"

(116). In other words, Galton data-processes himself. Levine is also struck by the

fact that for Galton, "each individual becomes congeries of inheritances rather

than a fully constituted self and agent" (116), but he never identifies this shift as

the breakdown of the liberal humanist subject in Galton's work.

Levine eventually reaches conclusions about Galton's autobiography that

are useful but undeniably limited, and even a little predictable, without the help of

the contemporary posthuman lens through which to interpret the eugenicist's

work. Levine argues, for example, that Galton's memoir "reveals more clearly

how the governing assumptions of the late nineteenth-century 'scientific'

viewpoint encourage the idea of self-effacement" (107), which is no doubt true,

but in Galton's case the extremity of the self-effacement leads to the breakdown

of the liberal human on the way to becoming posthuman. He finds Galton's

"otherwise pedestrian and unrevealing autobiography" (107) helpful for his own

"arguments about the scientific ideal of objectivity" (107) and finds the

eugenicist's anthropocentrism to follow closely "the materialism, determinism,

and objectivism of post-Darwinian nineteenth-century science" (123). Levine

himself continually points to the peculiarities of Galton's autobiographical

narrative, but never successfully distinguishes the impulses marking the

separation between Galton's narrative and that of other late nineteenth-century

scientists. He never fully acknowledges the extent to which the body in Galton's

narrative is lost in a stream of data. He only hints at it when he describes

Darwin's characteristically more embodied memoirs as—even through its own

modest self-effacements—at least displaying "the charm of family intimacy" whereas "Galton's seems a memoir by the dead" (115).

Indeed, the idea that Galton's autobiography was the work of a dead subject, or an object, is repeated in Levine's essay. Once again, without the help of developments in posthuman theory, it is easy to draw this conclusion, rather than the more natural conclusion about a well-known utopian and eugenicist— that the memoir is seeking to have the opposite effect, to show its subject as immortal (which, it might be argued, is a form of objectification or death). Levine argues, for example, that Galton's "self-effacement can manifest itself as something other than ingratiating charm—and even become the implicit justification for power and violence" (107):

> Such confrontation [of pain] implies or makes explicit the heroic powers of the observer and makes possible an understanding of the 'worst' that allows transcendence of it. Knowing the laws of nature becomes the only means to avoid their worst consequences. But knowing them means knowing not only the insignificance of the self . . . but the disassembly of the self, virtually into a mere machine, or 'automaton'. Some people might call it being dead. (114-115)

Levine's reading here is correct. Galton does disassemble the self in *Memories of My Life*. He does turn himself into a machine. He is an automaton in his own autobiography; indeed, he is already a computer. But, as Levine's argument shows, the "insignificance of the self" in Galton's work is different from Wallace and Darwin's stance because Galton does not wish to disassemble the subject in order to dissolve the boundaries between man and animal, but to dissolve the boundaries between man and machine.

As such, he is more anxious about the body and the need to transcend it—

to become immortal through the supposed purifying effects of automation and

data translation. In the first instance, he confronts pain in order to, as Levine

points out, master it. Thus, the austerity of Galton's style is punctuated by "his

presentation of moments of rather unpleasant violence. He finds a way to squeeze

in more violence and death than seems necessary for his story. It is oppressively

full of gory details" (120). In one haunting scene, Galton recalls, for example,

how his dogs found "a wretched native whose muscles along the back of his neck

had been severed to the bone, but whose throat was uninjured. He had crawled

under thorn-bushes to die, whence we extricated him. His head rolled horribly"

(*Memories* 141). *Memories* is even more bloody than *Tropical South Africa* in

what appears, in the second instance, to be an almost uncannily gothic 'return of

the repressed'; the impure body returns to haunt Galton's data-purified world. The

eugenicist cannot help himself. The sanitation of his codified cosmos cannot be

properly maintained.

Instead of being a memoir by the dead, *Memories* is a memoir by an

immortal, a posthuman, even a Singularity (a virtual twist on the Victorian

omnipotent narrator). Galton concludes his memoir the same way he concludes

many of his scientific treatises after 1865, with a complete dissolution of the

individual into a transcendent, holistic existence:

> Individuals appear to me as partial detachments from the infinite ocean of
> Being, and this world is a stage on which Evolution takes place,
> principally hitherto by means of Natural Selection, which achieved the
> good of the whole with scant regard for the individual. (323)

The individual becomes a particle, a bit, a number, or a piece of data within the amorphous and random logic of evolution. Galton's eugenics theory seeks to place the human, once again, at the centre of existence—just as Christianity had done in Europe for thousands of years—by replacing natural with artificial selection. The difference here is that, for Galton, these new beings are not fallen but rising; they have intellects so pure as to merge with the intelligence of the greater universe (in space) and with their ancestors and future progeny (in time).

In "Hereditary Talent and Character" and *Hereditary Genius*, as well as *Memories*, Galton was not only translating auto/biographies into data but, in the process, creating informational subjects whose mentalities were essentially public. He needed to externalize, as much as possible, the private mental processes of Britain's illustrious ancestors in order to find *historical* stores of the nation's natural intelligence and to prove that natural abilities were inheritable. These informational auto/biographies, genealogies, and mentalities would help Galton "devise means for favouring individuals who bore the signs of membership of a superior race" (*Inquiries* 211). These data translations of history and memory were, according to Galton, the best indicators by "which the health, character, and intellect of the youth will change through development in their due course, of ancestral tendencies that are latent in youth, but will manifest themselves in *afterlife*" (212; my italics). Galton could only create, through accurate predictions, a utopian *genealogy for the future* by statistically analyzing the patterns of the past; he surmised the intellectual inheritance descending from previous

generations. But Galton also needed to devise a means for identifying stock for reproduction in the Victorian marriage markets that, he speculated, would produce an intellectually regenerated future; in doing so, he needed more access to (representations of) the minds of his contemporaries.

According to Lev Manovich, the process of publicizing private mental processes is a key component of posthuman ideology; it is also integral to Haraway's "informatics of domination." Manovich, in fact, uses the example of Galton's composite photography—which he calls "the earliest form of image processing before digital computers" (212)—to historicize his concept of the "cognitive prosthesis,"[85] or the posthuman desire to objectify "internal, private mental processes," equating them with "external visual forms" that can be "easily manipulated, mass produced, and standardized on their own" (205). Manovich argues that posthuman minds are public minds, externalized as a means for commodification and control:

> What before was a mental process, a uniquely individual state, now becomes part of a public sphere. Unobservable and interior processes and representations are taken out of individual heads and put outside—as drawings, photographs, and other visual forms [i.e., Galton's graphs and tables of statistics]. Now they can be discussed in public, employed in teaching and propaganda, standardized and mass distributed. What was private becomes public. What is unique becomes mass produced. What was hidden in an individual's mind becomes shared. (205-206)

The private, inchoate, and mysterious are visualized through new technologies such as Galton's composite photography in the nineteenth century while today cognitive psychology, for example, which Manovich states "approaches the mind

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[85] I refer you to footnote 8 in my introduction for a discussion of my deepening and ever more urgent discomfort with the use of the "prosthetic" metaphor as I encountered (repeatedly) throughout the dissertation process.

as an information-processing system, as software that runs on the hardware of the brain" (211) externalizes the mind so that "the private and the individual" are "translated into the public and become regulated" (205). In the twenty-first century, such a reliance on visual and data-translated representations of mentalities breeds optimism for some posthumanists about possibilities for the "reverse engineering" (or copying and scanning, essentially commodifying) of the brain.[86]

After *Hereditary Genius*, Galton pioneered other, even more inventive means for taking stock of the current state of Victorian minds—for exposing mentalities to statistical representation. He started with a group that he knew to be of impeccable stock—the class of Victorian scientists he considered his intellectual peers.[87] In *English Men of Science: Their Nature and Nurture* (1874), Galton supplemented his standard genealogies—showing how scientific ability had been inherited through generations of Darwins and Wallaces—with answers to a questionnaire, then a new research tool (but soon highly influential in the social sciences). The questionnaire was a Galtonian invention—a way of accessing the private mental world of Victorian scientists. He designed the survey with the help of Herbert Spencer, the first of which ran "to seven quarto pages which he distributed to 180 selected members of the Royal Society" (Forrest 122). The questions required scientists to provide a thorough self-analysis, which

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[86] See Kurzweil's chapter, "Achieving the Software of Human Intelligence: How to Reverse Engineer the Human Brain" in *The Singularity is Near: When Humans Transcend Biology* (2005): 143-204.

[87] Galton published *English Men of Science* as a response to Alphonse de Candolle's *Histoire des Sciences et des Savants depuis deux Siècles*, in which de Candolle had challenged Galton's extreme privileging of nature over nurture in *Hereditary Genius*.

Galton knew would be a challenge for men more interested in observation than introspection and who might rebel against the idea of making their own eminent mental workings public (many claimed, for example, just such humility in their autobiographies).[88] Galton was therefore nervous about the response to his new cognitive invention. He had an "uneasy night" before distributing the questionnaires at the meeting of the Royal Society and, on the day, made sure he dressed in his best clothes as he was expecting to be "howled at": "but no! my victims, taken as a whole, tolerated the action, and some even approved of it" (qtd. Forrest 122-123).

Some, however, found it difficult to describe their own mentalities. Darwin, for example, provided a humble response to his cousin's questions, stating that he had no special talents "except for business" and that he was "very methodical" in his habits (qtd. Forrest 123):

> An early riser in the morning. Energy of mind shown by vigorous and long-continued work on the same subject, as 20 years on the *Origin of Species* and 9 years on *Cirripedia*. Memory bad for dates or learning by rote; but good in retaining a general or vague recollection of many facts. Very studious, but not large acquirements. I think fairly independently, but I can give no instances. I gave up common religious belief almost independently from my own reflections. I suppose that I have shown originality in science, as I have made discoveries with regard to common objects. (qtd. Forrest 123)

The number of hesitations and qualifications in his response ("Very studious, but not large acquirements"; "fairly independently"; "I can give no instances," "I suppose"), however, seem to suggest Darwin's discomfort with this form of self-dissection; indeed, Darwin accompanied his answers with a letter registering his

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[88] See Levine, *Dying to Know*.

scepticism about the possibility "of truthful self-assessment" (123). In the end, he apparently had his brother complete the questionnaire for him: "It is so impossible for anyone to judge about his own character that George first wrote several of the answers about myself, but I have only adopted those which seem to me true" (qtd. Forrest 123). Darwin could not even roughly sketch a representation of his own mind, raising early doubts about the accuracy of cognitive self-display.

Galton did collect some thoughtful (but also some self-aggrandizing) responses to his questions, which he eventually collated into informational form, then statistically analyzed, for the final edition of *English Men of Science*, in which he claimed once again, just as he had done in *Hereditary Genius*, that intellect (in this case, scientific intellect) was naturally inherited. Galton's conclusions in *English Men of Science* march him further down the path to posthumanism. Here he defines "genius" as fundamentally mechanistic, as "the automatic activity of the mind, as distinguished from the effort of will" (233). In his quest to establish "a sort of scientific priesthood throughout the kingdom" (260), Galton also supports the growing view that more scientists must be cultivated in British schools and universities. Unlike other utopians of the late Victorian period—including William Morris with his pre-technological *News from Nowhere* (1890) or Samuel Butler with his anti-technological *Erewhon* (1872)—he is now openly fantasizing about a *Kantsaywhere*, a scientific utopia founded on cognitive representations such as statistics.

By the time Galton published *Inquiries into Human Faculty and Its Development* in 1883, the questionnaire—with its direct access to the mental

workings of Galton's Victorian subjects (through cognitive self-representation)—

had been established as a key instrument in Galton's repertoire of research

techniques and tools, most of which he invented to find information in support of

his increasingly zealous belief in eugenics theory. *Inquiries into Human*

Faculty—the work in which he finally coins the term "eugenics"—exhibits the

breadth of Galton's studies during the *fin-de-siécle* period; he includes, for

example, a section on "Composite Portraiture," moves to "Whistles for Audibility

of Shrill Notes," and then on to "Criminals and the Insane." He reveals what he

believes to be different aspects of human mental capacity—capacities which had

before remained hidden from view—in order to show how mental processes had

been unconsciously bequeathed to future generations, and to show how certain

capabilities, such as thinking abstractly, might be selected for eugenic

transmission. He wants "to show how whole strata of mental operations that have

lapsed out of ordinary consciousness, admit of being dragged into light, recorded

and treated statistically, and how the obscurity that attends the initial steps of our

thoughts can thus be pierced and dissipated" (*Inquiries* 145).

In order to externalize a population's mentality, Galton breaks thought

itself down into parts, focusing on the special aptitudes of groups of individuals—

information he gains through the distribution of questionnaires—and then

theorizes about these mental operations through statistical averaging. As he states,

"a large class of mental phenomena, that have hitherto been too vague to lay hold

of, admit of being caught by the firm grip of genuine statistical inquiry" (141).

His sections on "Mental Imagery" and "Number-forms," along with his section on

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"Composite Portraiture" (for the last, see Chapter One), provide fascinating examples of Galton's attempts at cognitive imaging before the availability of brain scanning technologies.

The eugenicist focuses first on "those persons whose visual memory is so clear and sharp as to present mental pictures that may be scrutinised with nearly as much ease and prolonged attention as if they were real objects" (57). He is astonished to find that scientific men "protested that mental imagery was unknown to them" whereas poets and novelists continually alluded to the faculty (58). The general population also reported routinely seeing mental imagery, with one of his correspondents stating that his visions were "quite comparable to the real object. I feel as though I was dazzled, e.g. when recalling the sun to my mental vision" (61). According to Galton, "the visualising faculty is a natural gift, and, like all natural gifts, has a tendency to be inherited. In this faculty the tendency to inheritance is exceptionally strong" (69); the tendency, however, was more pronounced in women, public schoolboys, and of course the French. According to Galton, "an over-ready perception of sharp mental pictures is antagonistic to the acquirement of habits of highly-generalised and abstract thought" (60).

His discussion of mental imagery in *Inquiries* echoes and even anticipates cinematic theory at the turn of the century, especially Soviet montage, which understood film as an "analogy for mental life," a medium or machine for "the externalization of private mental functions and states" (Manovich 206). Thus, for psychology professors such as Hugo Münsterberg, "the psychological laboratory

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became indistinguishable from the cinematographer's mind. The mind was projected on the screen; the inside became outside" (206).[89] In his section on "Mental Imagery," Galton asks his subjects to describe the pictures inside their brains (although he believed only some of his more 'inferior' or artistic subjects had this capability), at one point describing a power "of projecting a mental picture upon a piece of paper, and of holding it fast there, so that it can be outlined with a pencil" (*Inquiries* 69). Indeed, at times, Galton's cognitive theories at seem as influenced by developments in photography and the cinematograph—starting with magic lanterns—as his work influenced the developments in these technologies. Galton's research into psychology seems to pave the way for Münsterberg—and later Sergei Eisenstein, who believed in "'filmic reasoning' (reasoning through images)"—to admire "the power of film to externalize the functions of consciousness" (Manovich 207).[90]

Galton's discussion of "Number-Forms," however, turns the brain into a cybernetic, data-starred space that is even more evocative of the *Neuromancer*-like posthuman discourses of the twentieth and twenty-first centuries. For this section, he uses his questionnaires to interview subjects who see numbered patterns or forms that assume "the most grotesque variety of shapes, which run in all sorts of angles, bends, curves, and zigzags" (*Inquiries* 80). Such a capacity, also inheritable, "consists in the sudden and automatic appearance of a vivid and invariable 'Form' in the mental field of view, whenever a numeral is thought of,

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[89] For more, see Manovich, pp. 206-209. Hugo Münsterberg published *The Photoplay: A Psychological Study* in 1916.
[90] For more on Eisenstein, see Manovich, pp. 207-208.

in which each numeral has its own definite place. This form may consist of a mere line of any shape, of a peculiarly arranged row or row of figures, or of a shaded space" (82). Galton's subjects visualized the numerical workings of their own mental operations, painting, *Flatland*-like, their own mental processes on pieces of paper for analysis. Some "do not commonly lie in a single plane. Sometimes a Form has twists as well as bends, sometimes it is turned upside down, sometimes it plunges into an abyss of immeasurable depth; or it rises and disappears in the sky" (86); one scientific man "sees the old garden and the numeral 7 at a tub sunk in the ground where his father fitted his watering-pot" (89).[91] According to Galton, Victorian calculator boys think in number-forms,[92] as do the creatures of the natural world, as we would soon discover if only we had access to their mentalities: "If a spider were to visualise numerals" Galton writes, "we might expect he would do so in some web-shaped fashion, and a bee in hexagons" (88).

This group of Galtonian subjects perceive the world through a combination of numerical patterns and randomness; they encrypt the world in data that can only be seen by the mind's eye (but which they try to describe and draw for Galton). The deeper Galton delves into his researches on mental language, the more posthuman and poststructuralist his world becomes; the material world dissolves into constructs of perception, yet he generalizes and objectifies these

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[91] Norbert Wiener describes a number vision, during an illness, in *I am a Mathematician* (1956): "It was impossible for me to distinguish between my pain and difficulty in breathing, the flapping of the window curtain, and certain as yet unresolved parts of the [mathematical] potential problem on which I was working" (85).

[92] Galton writes, "Mr G. Bidder is son of the late well-known engineer, the famous 'calculating boy' of the bygone generation, whose marvellous feats in mental arithmetic were a standing wonder. The faculty is hereditary" (*Inquiries* 94); "not a few mental calculators work by bulks rather than by numerals; they arrange concrete magnitudes symmetrically in rank and file battalions, and march these about" (99).

perceptions so that reality does not become individual, as the poststructuralists would imply, but virtual and posthuman. Galton's statistics would show how these visual, data-generated spaces were shared—almost like a computer dock that those in the know were plugged into.

Galton never referred to his work as psychology or psychoanalysis *per se*, although the eugenicist published some of his most important contributions to these emerging fields in *Inquiries*, perhaps even, as his biographer D.W. Forrest suggests, influencing Freud himself.[93] Instead, he used the term "psychometry" to characterize his cognitive investigations. The distinction is important. It is true that psychology and psychometry are both disciplines that seek to understand the mind by externalizing mentalities previously viewed as interior, private, and hopelessly inaccessible and untranslatable, yet their reasons for doing so can be distinguished by the former's relationship to liberal humanism and the latter's link to posthumanism. The methods employed, for example, by Victorian psychology and psychoanalysis were deeply tied to liberal self-narrativizing—in the form of introspection, storytelling, and even confession—whereas Galton's techniques, although relying somewhat on self-narratives, were more focused on

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[93] Freud was no doubt familiar with one of the first articles Galton published on the subject for the July 1879 edition of *Brain*, a journal to which Freud subscribed. In his writings, Freud makes "explicit reference to papers by the neurologist, Hughlings Jackson, contained in the January and October issues. However, he never referred to Galton's paper nor did he credit Galton with priority in suggesting the existence of unconscious mental processes" (Forrest 148). According to Forrest, "It is perhaps unimportant whether Freud's subsequent adoption in the 1890s of the free association technique really sprang from his availing himself of Galton's discovery. What is of greater significance today is the way in which Freud put the discovery to work as the therapeutic tool of psychoanalysis. But then it was Freud's genius to explore the depths of the unconscious which Galton had glimpsed" (148).

measurement in order to form statistical generalizations, throwing results into a "common statistical hotchpot" (136) and showing, for example, "the measurable rate at which associations sprung up, their character, the date of their first formation, their tendency to recurrence, and their relative precedence" (145). Furthermore, psychology and psychoanalysis sought to heal, i.e., change, the individual mind whereas Galtonian psychometry expected to heal (i.e., eugenically regenerate) the population, race, or species; for Galton, the individual mind was, for the most part, fixed and unchangeable, a product of nature rather than nurture. The degenerating mind of the race could only be healed through strategic, state policy-enforced reproduction.

So, although *Inquiries* provides one of the first analyses of the "antechamber of consciousness" (146), or the 'unconscious', which Galton decribes as deep "strata of mental operations, sunk wholly below the level of consciousness, which may account for such mental phenomena as cannot otherwise be explained" (145), he is still moving toward a performativity model of the brain that echoes twentieth-century poststructuralism more than Freudian liberal humanism. Throughout his section on "psychometry," he describes his conscious and unconscious thoughts as "histrionic representations" (142), deepening our understanding of the self by describing the mind, in a rather Shakespearean way, as a stage upon which our thoughts perform:

> There seems to be a presence-chamber in my mind where full consciousness holds court, and where two or three ideas are at the same time in audience, and an antechamber full of more or less allied ideas, which is situated just beyond the full ken of consciousness. Out of this antechamber the ideas most nearly allied to those in the presence-chamber

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> appear to be summoned in a mechanically logical way, and to have their turn of audience. (46)

According to Galton, "The successful progress of thought appears to depend—first, on a large attendance in the antechamber" (146). He describes his own mind as an "imaginary mental theatre" (142); he is aware of himself "as a mental puppet" (144). In other words, there is no essential self; in the words of Gertrude Stein, "there is no there there," outside of performance, just fragments, the "multifarious" aspects of mind (2). What is more, these performances, according to Galton, might not be as complex as we think: "The actors in my mental stage were indeed very numerous, but by no means so numerous as I imagined," he observes. "They now seemed to be something like the actors in theatres where large processions are represented, who march off one side of the stage and, going round by the back, come on again at the other" (135).

Galton's discovery of the 'antechamber' comes out of an intense "psychometric" mapping of the workings of his own mind, leading him to perceive his own mind, as he did in his 1884 article on "Free Will" for *Mind*, as arranged like that of an automaton. Galton's method for objectifying, visualizing, and verbalizing his own mental operations involved "extremely trying and irksome" (133-134) experiments, such as allowing his mind to "play freely for a very brief period, until a couple or so of ideas have passed through it, and then, while the traces or echoes of those ideas are still lingering in the brain, to turn attention upon them with a sudden and complete awakening; to arrest, to scrutinise them, and to record their exact appearance" (133). He then collates the records and draws conclusions. Galton notes that before performing these

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experiments, his own mental workings were mysterious. He assumed his mind, or

"field of view," was "essentially of a uniform black, subject to an occasional

light-purple cloudiness" (114). After habituating himself, however, "to examine it

with the same sort of strain that one tries to decipher a signpost in the dark, I have

found out . . . that a kaleidoscope change of patterns and forms is continually

going on" (114). Yet he was also surprised to find that the mental patterns and

forms were rather repetitive. He writes that "our working stock of ideas is

narrowly limited and that the mind continually recurs to the same instruments in

conducting its operations" (145). Furthermore, there is "much less variety in the

mental stock of ideas than I had expected, and makes us feel that the roadways of

our minds are worn into very deep ruts" (138). These deep ruts, of course, might

be calculated and analyzed in Galton's time, while in our own they are copied and

cloned, or 'reverse engineered', into computer drones and AIs.

Inquiries concludes, however, not only that we are individuated automata,

defined by nature rather than nurture, but that the very repetitiveness of the

activity in our brains suggests that we are part of a larger order. Once again

Galton provides us with a grand statement on the breakdown of the liberal subject,

this time pushing the concept even further into a futuristic, science-fictional, and

posthumanous mindset. He starts with the small and builds outwards:

> The continual sequence of these multitudes of little lives has its outcome
> in the larger and conscious life of man as a whole. Our part in the universe
> may possibly in some distant way be analogous to that of the cells in an
> organised body, and our personalities may be the transient but essential
> elements of an immortal and cosmic mind. (*Inquiries* 196)

Galton understood that the mind, once made public, could be copied (or cloned), and so, as Manovich has argued, standardized and controlled. Galton did want to control the reproduction of Victorian mentalities—he wanted to accumulate intelligent stock for the race—and so he would seek to shape a eugenic future by designing minds. He did begin *Inquiries* with a more Darwinian-like statement in favour of a diversity of minds—"the moral and intellectual wealth of a nation largely consists in the *multifarious variety* of the gifts of the men who compose it, and it would be the very reverse of improvement to make all its members assimilate to a common type" (2; my italics)—but then undercuts the sentiment by advocating for a eugenics program that sought the reproduction of a "common type" of beauty and intelligence. Galton's idea of diversity was limited to narrowly-defined and culturally-determined definitions of eugenic superiority. In the same breath, he is careful to point out that certain traits, by necessity, and as he defines them, should be eliminated from the race: "In every race of domesticated animals," he writes, "and especially in the rapidly changing race of man, there are elements, some ancestral and others the result of degeneration, that are of little or no value, or are positively harmful" (2).

His use of, and even obsession with, competitive examinations became one way of publicizing superior minds, of separating elite thinkers from a "common type," and weeding out the weak. The model he used throughout his work on eugenics—from "Hereditary Talent" to *The Eugenic College of Kantsaywhere* (he sets his eugenic utopia in a university town)—was, ironically, based on the Cambridge system (with its newspaper-published rankings of

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Wranglers at the top and Wooden Spoons at the bottom) that nearly broke him decades earlier. Reducing intelligence to a public, quantifiable IQ-like number, however, could become a convenient mode of selection in a eugenics-based society where the intellectually strong and weak could be easily identified and channeled into streams for reproduction (with the support of trusts and endowments) or sterilization (where harsh punishment would be meted out to those who did not co-operate with a fate based on low examination scores).

Thus, Galton's views on (universal) education did not fit with the Victorian liberal humanist model of self-improvement through self-actualization. As we have seen, his theories of differentiated intelligence and of the fixed and determined, rather than self-determining, mind did not mesh well with liberal humanist theories of natural equality. He did not believe that each individual mind had equal, or even any, potential for growth; instead, his data-centric model viewed education as a means for publicly identifying those minds that could be perfected, and those that clearly could not (like himself?), for possible eugenic selection or non-selection. Within Galton's vision, competitive examinations helped expose, for the public good, the unalterable truth about the previously private mental workings of Victorian individuals.

Indeed, Galton saw the world, and even existence itself, as a standardized test. He extended the metaphor, for example, into the natural world in order to show how Darwin's "struggle for existence," or as he referred to it, the "survival of the fittest," adopting the phrase from Spencer, worked as a cruel competition, akin also to *laissez faire* economics, where only the strong test-takers survived. In

"Hereditary Talent," he argues that "every animal before it is of an age to bear offspring, has to undergo frequent stern examinations before the board of nature, under the law of natural selection" (323). Natural selection becomes a board exam—while later on he would argue that the exam room is a state of nature where great minds were engaged in a "struggle for eminence" (*Hereditary Genius* 50)—and adaptation becomes a matter of knowing how to take a test. While Darwin's "struggle" was envisioned as a complex and messy war carried out in the weeds of the teeming materiality of the tangled bank, Galton "survival" was envisioned as a decision-making process that was eminently quantifiable.

Darwin's evolutionary model is much more physical than Galton's IQ-anticipating eugenics model. Galton's deterministic model also moves away from liberal humanism when he states that "to be 'plucked' is not necessarily disgrace" although it is "certainly death'" ("Hereditary Talent" 323). In other words, the unfit are not responsible, because of some personal failing, as the liberal humanists believed, for their being 'plucked', but were simply unlucky in the eugenic lottery, though the result was nevertheless finite. In this way, Galton's model has more in common with the puritan doctrine of predestination than with Victorian liberalism. Galton, indeed, saw eugenics as an altruistic theory that would save humanity a lot of needless suffering. Man, after all, "as a reasonable being, has the privilege of not being helpless under the tyranny of uncongenial requirements, but that he can, and that he does, modify the subjects in which nature examines him" ("Hereditary Talent" 323). Man was the only species that had the power to control his own evolution, which for Galton meant rigging the

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exam to get better data outputs, and to create a breed of humans who did not have to worry about being plucked and who could conceivably attain a measure of immortality (at least as far as the stock they carried).

Galton even conceived of decision-making itself (which, in a rare acknowledgment of a role for free will in human intelligence, he conceded was an "effort" at times) as a ruthless, almost capitalist, competition between ideas. It was Galton's 'survival of the fittest' of the mind. He states that "the character of this effort seems to me chiefly to lie in bringing the contents of the antechamber more nearly within the ken of consciousness" (*Inquiries* 147). Our deepest, most private thoughts are brought to the surface where they might be publicly accessed in a process involving a mind's eye that "takes comprehensive notes of all its contents" and then "compels the logical faculty to test them *seriatim* before selecting the fittest for a summons to the presence-chamber" (147). According to Galton, your mind is not made up of a messy instantiated brain, but is an orderly, patterned space akin to the Cambridge examination room where logic is ever engaged in a dominating informatics—the data-processing, or eugenic selecting, of the fittest ideas for expression and computation. The mind resembles a computer.

A utopia set within a competitive university environment had been part of Galton's vision from the time of his earliest thinking on eugenics, starting with "Hereditary Talent and Character." Although it would take him more than forty years to expand this initial utopia into speculative fiction with his attempted

publication of *Kantsaywhere*, he had had utopian colleges on his mind long before. In one of his first statements of eugenics theory and speculation, he asks his *Macmillans* audience in 1865: "Let us, then, give reins to our fancy, and imagine a Utopia—or a Laputa, if you will—in which a system of competitive examination . . . had been so developed as to embrace every important quality of mind and body" (165).[94] In such a utopia, where "a considerable sum was yearly allotted to the endowment of such marriages as promised to yield children who would grow into eminent servants of the State" (165), the "Senior Trustee of the Endowment Fund" would address "deeply-blushing" eminent young men who had been statistically generated—through artificial selection—to serve a highly centralized, totalitarian state through the breeding of other eminent servants for that state.

In an annual ceremony, Galton imagines a Trustee announcing "the results of a public examination" conducted on "established principles"—i.e., a standardized test—celebrating those who "occupy the foremost places in your year, in respect to those qualities of talent, character, and bodily vigour which are proved, on the whole, to do most honour and best service to our race" (165). In this early version of *Kantsaywhere*, the results of the Cambridge-style test—or the public reduction of the mind to an IQ-like number for command, control, and copying—become the only criteria for eugenic selection and rejection. The number represents the mind of these superior boys who are charged with transmitting their superior qualities to the next generation. In order to pass on the

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[94] "Laputa" is taken from Jonathon Swift's *Gulliver's Travels* (1726); "Utopia" is of course from Thomas More's 1516 book of the same name.

number, they must marry. Thus, some impressive women are also examined

according to a different set of gender-essentializing criteria, this time taking note

of Victorian ideals of femininity such as "grace, beauty, health, good temper,

accomplished housewifery, and disengaged affections, in addition to noble

qualities of heart and brain" (165). The women, based on these gender

stereotypes, are also reduced to a similar number and ranked. The top ten women

and men are then announced and offered an endowment upon their marriages to

each other and upon their production of "an extraordinarily talented issue" (165).

Queen Victoria herself would give away the brides during "a high and solemn

festival, six months hence, in Westminster Abbey" (165), as the new hereditary

royalty, based on eugenic rather established inheritance, overtakes the old. The

Trustees then "assign 5,000 *l*, as a wedding-present, and to defray the cost of

maintaining and educating your children, out of the ample funds entrusted to our

disposal by the State" (165).

Such a eutopia, contained as a speculation within a scientific article, also

relies on and promotes the late nineteenth century eugenic fantasy of "rational

reproduction." The men and women of Galton's "Utopia—or a Laputa, if you

will" are not impulsive or passionate (i.e., embodied) creations but hyper-logical,

robotic humans who choose mates based on competitive examination rankings.

Initially, the model does not appear so different from the 'rational selections' of

other Jane Austen-type marriage markets of this era and before. However, as with

the genealogies, the criteria for selection has changed from noble to natural

inheritance. Richardson uses the phrase "rational reproduction" in *Love and*

Eugenics to describe the form of eugenic love promoted amongst a group of New Woman eugenicists who wanted to find ways for women to exert more control over their own marriages and so their own bodies.

These eugenic feminists, also working from the sexual stereotypes of the day, believed that women should be responsible for purifying the race because they were less sexually impulsive and more naturally virtuous. Women could more rationally chose a partner who was a credit rather than a hindrance to the race because they were able to think logically about the future rather than surrendering to the lusts of the moment; they, not men, were able to apply a more objective and discerning *scientific* eye to Victorian courtship. As Richardson notes, by "resisting male passion, women, as the bearers of moral biology, would initiate the replacement of romantic love by rational eugenic love—conscious sexual selection" (Richardson 56). Although the socially conservative Galton did not embrace eugenic feminism—nor did he seem particularly aware of the cause—he still promoted "rational reproduction." He believed, however, that the male was still the more reasonable sex and so should be in charge of sexual selection.

The model, whether advocated by feminist or patriarchal eugenicists, such as Galton himself, was posthuman in several ways. First, discourses of "rational reproduction"—related to doctrines of Christian procreation and now postmodern forms of technological reproduction (i.e., artificial insemination)—downplays the role of the body in sexual relationships. The body is reinscribed as mechanistic rather than sensual, and bodily intimacy is repressed by or dissolved in intellect.

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Thus, passion is removed from marriage as conscious sexual selection, a form of decision-making, usurps more instinctive sexual attractions as the path to 'reproduction'. Accordingly, as Richardson states, "the love now proposed would employ reason not simply *in* but *prior to* the marriage bed, in the process of the selection of a partner" (56). But the marriage bed, too, becomes a rational and scientific, rather than erotic, space where the pressure of statistical predictions for the future overwhelm the pleasures of the moment. The arguments "in favour of rational selection which underpinned eugenics were in tune with the general devaluation of passion—or animal behaviour—in favour of reason that characterized the Enlightenment" (56). Indeed, according to Richardson, eugenic love was "the antithesis to passion, a replacement of sexual love, in the name of humanity" (57).

By draining the unpredictability of passion from sex, and re-conceiving sexual love as potentially *reasonable*, supporters of Galtonian eugenics felt they could exert some measure of control over reproduction—in the decades before high-tech interventions made such control easier—and therefore manipulate the future character of the population. In other words, sex was already being engineered decades before scientists discovered their power to engineer genetically. The findings of the German biologist August Weismann, who, like Galton, was a zealous advocate for the nature-trumps-nurture ideology, even helped provide an early version of these more (post)modern models of "rational reproduction" when he published *Essays on Heredity* in 1889. Weismann further downplayed the role of the body in heredity when he argued that germ-cells

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merely transmitted information through, rather than from, the organism. Richardson summarizes Weismann's theory as one in which "the protoplasm peculiar to the germ-cell—'germ-plasm'—which bore the factors determining the transmission of characters from the parent, was completely isolated from the body of the organism that carried it, and was transmitted unchanged from generation to generation" (13). For Weismann, as for Galton, information transcends the body—even as the body is becoming increasingly codified as information—rather than being instantiated by it. For Weismann, Galton, and the eugenic feminists, reproduction was becoming disconnected from sex itself, and the future, as an informational utopia generated from the progressive transmission of perfected human codes, was becoming disembodied.

Second, these utopias of "rational reproduction," in their desire to avoid human intimacy, advocated a public mating ritual that was based on the externalization of private mental processes. The mind and body were simultaneously data-translated and made public. In "Hereditary Talent and Character," for instance, men and women are chosen for a pool of potentially desirable sexual selections on the basis of their ability to publicly display their intellect on competitive examinations. Furthermore, these triumphantly desirable anthropometrically-tested and ranked couplings are put on display—with Queen Victoria giving away the brides at a 'royal' spectacle in Westminster Abbey— almost like a Victorian reality TV show, say *Victorian Jeopardy* meets *The Victorian Bachelor*. At this strategically planned yet "high and solemn festival" (165), there is a public proclamation of rational love. As we will see in the next

chapter, the author writing under the name 'Nunsowe Green' would carry the concept of Victorian reality TV-style public couplings for "rational reproduction" even further in his scientific fantasy set "a thousand years hence." In these eutopias, there is no need for the intimacy normally associated with sexual love. Marriage becomes a means to an end, a commodified ritual, and above all a tool for social discipline. In these fantasies, marriage is 'broadcasted' and sold to the general population as eugenic propaganda. Thus, these rationally reproductive couples are subject to the kind of eugenic voyeurism as the Hottentot Venus when she was under the exploitative gaze of Galton's trusty sextant in South Africa. While there has been much important scholarship in the last decades undercutting the stereotype of Victorian prudishness, such as Foucault's *History of Sexuality* (1976-1984), we must not forget that Victorian sexual repression did exist, in this case in the form of "rational reproduction." We might call it the return of the Victorian repressed.

Third, "rational reproduction" was a practice of "eugenic intervention" meant to regenerate the future, to restore the vigour of the British race, by exponentially speeding up the progress of human evolution (turning natural selection into artificial selection). More than that, however, "rational reproduction" was intended to avoid the inevitable 'decline and fall' of the British race and, moreover, the inevitable Darwinian extinction of the species. The aim, as I have argued, was none other than immortality, which involved the absolute breakdown of the liberal subject into a transcendent oneness. While the eugenic feminists saw "rational reproduction" as giving agency to women, Galton saw the

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practice as leading towards a eugenic utopia—a posthuman afterlife of data-translated quasi-immaterial beings. Thus, we can see why Galton, even putting aside his social conservatism, was more invested in propagandizing eugenics through utopian rather than New Woman fiction. Richardson's claim that "the most sustained expressions of eugenic ideas were to be found in fiction and, in particular, in a body of late nineteenth-century feminist fiction" might only be challenged by the genre that Galton himself chose to write in, which, for the most part, like Richardson's feminist fiction, has only recently been discovered.[95] Indeed, the late Victorian utopia influenced the thrust of his eugenic speculations, and, as we shall see in the next chapter, this was also the genre that addresses Galtonian eugenics on its own posthumanous terms.

Galton's eugenic focus on purity, sanitation, cleansing, and human perfectibility ultimately led to a call for a new religion of divine disembodiment involving the final dissolution of the liberal subject. While most religions eventually reach a similar mystical end, in Galton's case, the eugenicist seems particularly indebted to eastern philosophy and Victorian spiritualism. As Christine Ferguson has argued, "The eugenic ideal of an impending society in which sickness and suffering had been eliminated, in which handsome and fit bodies replaced old and diseased ones, and in which each race or type preserved only its best specimens, is identical to the spiritual conception of the afterlife" (67). Indeed, Galton advocated a eugenics that sought "the elimination of death

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[95] See Claeys' *Late Victorian Utopias* and I. F. Clarke's *British Future Fictions, 1700-1914*.

itself" (67). However, while the spiritualists conceived of the next world as "a great sanatorium [*sic*]," Galton wanted to build his sanitarium for the future.[96]

Galton's reframing of eugenics in specifically religious terms began some time in the 1880s. *Inquiries into Human Faculty and Its Development*, for example, concludes that the chief result of his study was to "elicit the religious significance of the doctrine of evolution" (220); the new duty was "to further evolution, especially that of the human race" (220). By the turn of the century, he published an essay entitled "Eugenics as a Factor in Religion" in which he describes eugenics as a creed opposed to "passive" and "mechanical" (or Darwinian) evolution. For Galton, the doctrine of evolution displayed the "awe inspiring spectacle of a vast eddy of organic turmoil, originating we know not how, and travelling we know not whither" (68). His cousin's theory, as opposed to his own, showed the natural world as "a grand phantasmagoria" shaped by "blind and wasteful processes" and an "extravagant production of raw material" (68). Evolution was a doctrine of "violent internal commotion" and "constant flux and change" (68-69). Darwinian evolution, for Galton, was almost cravenly embodied.

Eugenics, on the other hand, was a social duty that would consciously cleanse the world of evolutionary superfluity before the natural culling occurred. Eugenics would attempt to breed out the "waste" beforehand, saving the world

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[96] Victorian spiritualists saw the afterlife, rather than the future, as a release from the troublesome body. Thus, for the diseased and disabled in particular, death should be welcome. As Ferguson observes: "The implication here is truly chilling. Without a (material) body, there can be no bodily impairment. Thus the best way to help the feeble-minded might be to deprive them of the flesh prison that registers their defect and move them onto the other side where they can be most effectively cured" (72).

much suffering, and creating a more purified existence. In this way, eugenicists saw their theory as one of pity and mercy for the weak as much as a celebration of the strong. They would save the weak by exterminating them or not allowing them to come into existence through sterilization, or, as in the Nazi interpretation of 'negative' eugenics, death camps. In this way, eugenics—as a science obsessed with life—becomes a theory mired in a culture of death. Such 'merciful' breeding practices would come as the result of the "intelligent action of the human will" which Galton felt was capable of guiding the course of evolution (69). In his 1904 lecture, "Eugenics: Its Definition, Scope, and Aims," read before the Sociological Society and an audience which included H. G. Wells, Galton argued that eugenics "must be introduced into the national conscience, like a new religion" (42). Eugenics, for Galton, had "strong claims to become an orthodox religious tenet of the future, for Eugenics co-operates with the workings of Nature by securing that humanity shall be represented by the fittest races. What Nature does blindly, slowly, and ruthlessly, man may do providently, quickly, and kindly" (42). Galton had at least one convert. George Bernard Shaw would reply, in writing, that "nothing but a eugenic religion can save our civilization from the fate that has overtaken all previous civilizations" (Galton "Eugenics" 74).[97]

Thus, for all his research on the automatic nature of consciousness, Galton did find room for free will in his eugenics theory. The concept was at the centre of his thought. Yet Galton never associated "free will" with the individual, insisting

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[97] G. K. Chesterton would later write of Shaw "considering the idea that to breed a man like a cart-horse was the true way to attain the higher civilization, of intellectual magnanimity and sympathetic insight, which may be found in cart-horses" ("To the Reader").

that "'individuality' is in fact a most misleading word" (*Inquiries* 217). The

individual, for Galton, was always a data particle in a greater cosmic (and

decidedly totalitarian) scheme. As far back as 1869, Galton was laying out a

system of scientific belief that described individual life as a "portion of some

vaster system" (*Hereditary* 405). The word "Man," he wrote, "when rightly

understood, becomes a noun of multitude" (416). Throughout his career, Galton

had insisted on the destruction of the liberal subject, stating in *Hereditary Genius*

that we must not "be misled by the word 'individuality,' because . . . our

personalities are not so independent as our self-consciousness leads us to believe"

(428). An individual is "not wholly detached from its parent source" but is like "a

wave that has been lifted and shaped by normal conditions in an unknown,

illimitable ocean" (428).

Galton's version of the 'human' deconstructs liberal humanist theories of

individual essentialism and autonomy; his humans are not boundary-based,

holistic entities but more fluid beings, made up of oceans of particles. Yet, despite

his critique of liberalism, Galton does express an almost religious belief in the

power of the collective human mind to direct human evolution. The mind of the

collective human could reach a higher life. Galton's "free will" belonged to the

species and not to the individual:

> There is decidedly a solidarity as well as a separateness in all human, and
> probably in all lives whatsoever; and this consideration goes far, as I think,
> to establish an opinion that the constitution of the living Universe is a pure
> theism, and that its form of activity is what may be described as co-
> operative. It points to the conclusion that all life is single in its essence,
> but various, ever varying, and inter-active in its manifestations, and that
> men and all other living animals are active workers and sharers in a vastly
> more extended system of cosmic action than any of ourselves, much less

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of them, can possibly comprehend. It also suggests that they may contribute, more or less unconsciously, to *the manifestation of a far higher life than our own*, somewhat as—I do not propose to push the metaphor too far—the individual cells of one of the more complex animals contribute to the manifestation of its higher order of personality. (428; my italics)

For Galton, the aim of eugenics is to push towards a "higher life." Much science fiction, such as Green's *A Thousand Years Hence*, expresses a similar desire to push for a higher order of existence and place individuals within a cosmic oneness. Galton hoped to tap into a higher level of consciousness through data-directed regeneration. The ultimate endpoint is immortality. But there is a denial of death at the heart of posthumanism and eugenics. They claim to disavow Christianity and yet, unlike Victorian Darwinism, both theories reinscribe the Christian language of redemption, transcendence, and salvation into scientific ideology. Galton replaces the divine guiding hand with a generalized human one and hopes for a new eugenically-purified techno-Eden of the future. Whereas Christians hope for an already existing afterlife after death, Galton wanted to engineer an afterlife in life. For Galton, humanity had not fallen but was merely in the process of being perfected, or data-cleansed, through Victorian technologies, many of which he invented.

The 1860s. Louisa Galton sits in the front room of her house at Rutland Gate waiting for her husband to return from another ramble. A copy of the *Origin* is in her lap, opened to the "Tree of Life."

There is a photograph of the Darwins on the parlour table, taken at their home in Kent. Louisa runs her fingers across the faces of the children and starts counting: "William, Etty, George, Leonard, Francis, Horace, Elizabeth . . .

"And of course three died," she mutters. "Poor little Anne."

Anne Elizabeth Darwin, 10, sits next to her father in another picture on the table. Louisa lets her finger linger on the ornate frame.

She stares out into the London fog, her other hand spread on her flat belly.

Then out of nowhere her husband appears out of the fog like an apparition, or like one of his ghostly composite photographs.

He shakes off the strangling fog as her collapses in through the door with a commotion.

"Why, what is it, dear?" asks Louisa, concerned. "What is the matter?"

"Louie, darling," says Galton, taking his wife in his arms. "I've got it!"

"Got what, dear," says Louisa, smiling at her eccentric husband's antics, and combing her finger through a mutton chop.

"A way to rejuvenate the race! We shall grow a race of geniuses!" he exclaims. "A race of Darwins!"

Then he turns Louisa towards a drawing of a young couple over the fireplace; it was sketched on the day of their engagement at the Crystal Palace in 1853.

"And perhaps Galtons too," he whispers softly in her ear.

But Louisa, aged 30-something, turns her head once more to the fog, refusing to look at her blue-eyed husband's face.

VIRTUAL VICTORIA AND THE "WABBLING JELLIES OF KNOWLEDGE":
TWO *FIN-DE-SIÈCLE* SCIENCE FICTIONS ENGAGE THE POSTHUMAN

The foundation of Eugenics is, in some measure, laid by applying mathematics—statistical treatment to large collections of facts, and this, like engineering deep down in boggy soil, affords little evidence of its bulk and importance. The superstructure requires for its success the cooperation of many minds of a somewhat different order, filled with imagination and enthusiasm . . .
Foreword to the first issue of *Eugenic Review* (1909)

"Mr. Galton, meet Mr. Wells."

Karl Pearson stands between Francis Galton and Herbert George Wells. The 82-year-old Galton holds onto Pearson's arm as he stares the 37-year-old writer of "scientific romances" in the eye. Wells smiles and bows his head as if to an elder statesman. They are standing under an electric lightbulb in a corridor of the School of Economics and Political Science at London University. The year is 1904.

"Pleased to meet your acquaintance, Mr. Galton. I am eagerly anticipating your address to the Sociological Society."

"While I have never much cared for your fantasies, Mr. Wells," says Galton, bushy eyebrows cocked towards his subject, " I did enjoy this latest work, this *Anticipations*."

Wells looks at his feet. "Yes, well, there were some problems with it. Conrad wrote me a rather nasty letter. I'm writing another utopia now. It's about a dynamic . . ."

 "Did you ever notice," interrupts Galton, "that you can calculate boredom?"

"Why, I can't say that I have," says Wells, a little taken aback.

"I always calculate the boredom of audience members during scientific papers," says Galton, a sparkle in his eye, "and I shall watch for your fidgeting during mine. You see, I have this pocket pricker . . ."

Galton reaches into his pocket to reveal an origami-like, frayed bit of paper shaped into a cross. There are differing numbers of pricks on each arm.

"You'll have to excuse me, Sir Francis," says Wells, staring through the swinging door at a cloaked figure seated at the back of the lecture theatre. "I just spotted someone I haven't seen for years."

"Shaw?" asks Galton.

"No, Shaw isn't here, Frank," says Pearson. "He's sending his response in writing."

"That old bastard is the most boring of all," mutters Wells to himself as he climbs the stairs towards the mysterious person at the back, calling, "Nunsowe! Nunsowe! Is that you Green?"

I am now ready to click on the critical link between Galton's posthuman eugenics theories and late Victorian science fiction and utopia, opening a connection that will be explored for the remainder of this study. Richardson claims, as we saw in the last chapter, that in the late nineteenth century "the most virulent expression of eugenic ideas was not within legislative acts and public policy, but within popular and intellectual discourses; early British eugenics was a matter of rhetoric and representation" ("Prologue" 1). While she rightly finds that

the most "sustained expressions of eugenic ideas were to be found in fiction," she

focuses only on "feminist fiction which has for the most part only recently been

rediscovered" ("Prologue" 1). Yet the late Victorian utopia, another neglected

genre, can lay claim to the dubious distinction of being the genre with the closest

ties to eugenics. Indeed, many late Victorian utopias ground their fictional

structures—as narratives concerned with improving the race through selective

breeding in order to produce the posthuman/superman—in Galtonian, even more

than Darwinian, ideology.[98]

As Gregory Claeys has noted in *Late Victorian Utopias*, "the leading

themes uniting the genre" during this period were "the discussion of social

Darwinist and eugenic themes, and the debate over the promise or threat

presented by the socialist movement" (x). He even identifies a sub-genre that he

labels "the eugenicist utopia/dytopia" that emerged "in the closing decades of the

nineteenth century" (x).[99] Of course, eugenics, or proto-eugenics, has historically

played a key role in the shaping of utopian narratives (e.g., Plato's *Republic*,

Camille Flammarion). Patrick Parrinder asks, "Can we imagine a better society

without imagining, and wishing to create, better people? The traditional utopia, it

can be argued, depends on eugenics just as it depends on stability, social

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[98] Darwin, too, had an important influence on the late Victorian utopia; however, his greatest influence, it has been argued, was on Victorian realism (see Beer's *Darwin's Plots* and Levine's *Darwin and the Novelists*), whereas Galton made his mark on more future-oriented and technologically-driven science fictions.

[99] Darko Suvin includes *A Thousand Years Hence* in his "alternative history sub-genre" in "Victorian Science Fiction, 1871-1885: The Rise of the Alternative History Sub-Genre," *Science-Fiction Studies* 10 (1983): 148-169.

stratification, and the abolition of private property" (Parrinder "Eugenics and Utopia" 1).

Yet late nineteenth-century utopias, unlike their earlier counterparts (such as Thomas More's foundational *Utopia*), are specifically indebted to a more data-oriented, heredity-based, scientific eugenics in more *science fictionally* utopian form. Hence, Claeys points out that "the chief utopian component to be developed from Darwinism . . . was derived not from the inevitability of the struggle for the means of subsistence, which would notionally result in the 'survival of the fittest,'" but in "the voluntarist strand of evolutionary theory developed by Darwin's cousin, Francis Galton" (xv). According to Claeys, Galton's "dual assessment of the negative degeneration of the species and the positive capacity of humanity to foster species improvement by selective breeding was to prove enormously influential over a century-long period" (xv).

Still, some critics, such as Peter Morton, in his rather dismissive discussion of the relationship between eugenics and utopia in *The Vital Science*, have strangely (and rather moralistically) played down the role of Galtonian ideology in late Victorian utopians, ignoring the technoscientific, or posthuman, aspects of nineteenth-century eugenic discourse, whether in the science or the fiction. Remarkably, Morton states that, while "eugenics was indeed a component in most of the Utopian writing after 1870. . . the concern with raising a better stock only rarely went so far as to consider what we would now call 'genetic engineering'; that is, the direct interference in the process of inheritance" (129). He argues that "those writers who espoused eugenics normally added little to the

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classical arguments for the state's involvement in, and supervision of, the

selection of parents for the next generation" (129).

Chapter Three examines two different Victorian utopias in order to refute

Morton's early and influential claim about this understudied yet culturally

important genre and to show how nineteenth-century utopias were fashioning

more than just political alternatives, such as socialist societies, but were also

deeply involved in reimagining the body. 'Green's' *A Thousand Years Hence*

(1882) and Wells's *The First Men in the Moon* (1901) provide two of the best

examples of just how engaged late Victorian utopias and dystopias were with

technoscientific questions we now consider 'posthuman' (i.e., issues of

embodiment, genetic and social engineering, public cognition, and immortality)—

issues that do in fact seem eerily familiar to us. These two novels are fairly

representative of the Galtonian concerns of a large and long-neglected stockpile

of nineteenth-century novels of Victorian science fiction and utopia that have only

recently seen the light of day in Claeys' collection of *Late Victorian Utopias*

(2009) and earlier with Suvin's still indispensable annotated bibliography, *Science

Fiction in the UK: Discourses of Knowledge and Power* (1983).[100] However,

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[100] Here is a sample of works seriously considered as illustrations of the effect of Galtonian posthumanism on Victorian science fiction and utopia: Joseph Shield Nicholson's *Thoth: A Romance* (1881), Edward Bellamy's *Looking Backwards: 2000-1887* (1887), Samuel Butler's *Erewhon; or, Over the Range* (1872), Frank Challice Constable's *The Curse of Intellect* (1895), Henry L'Estrange's *Platonia: A Tale of Other Worlds* (1893), J. Compton Rickett's *The Quickening of Caliban: A Modern Story of Evolution* (1893), Arthur Morgan and Charles R. Brown's *The Disintegrator: A Romance of Modern Science* (1891), Winwoode Reade's *The Martyrdom of Man* (1872), Edward Maitland's *By and By: An Historical Romance of the Future* (1873), Andrew Blair's *Annals of the Twenty-Ninth Century; or The Autobiography of the Tenth President of the World Republic* (1874); Richard Jeffries' *After London* (1885), William Hudson's *The Crystal Age* (1887), Henrietta Dudgale's *A Few Hours in a Far-Off Age* (1883), and especially Kenneth Folingsby's *Meda: A Tale of the Future* (1891), Edward Bulwer Lytton's *The Coming Race* (1871), Grant Allen's "The Child of the Phalanstery" (1884), George Griffith's

whereas other examples of proto-posthuman, eugenically-minded Victorian science fiction seem only partially invested in one or two of the three crucial links—data purification, mind externalization, and intellect immortalization—between heredity, intelligence theory, and cyborgs, these two novels show us how these links might imaginatively work. Green demonstrates, and Wells parodies, how eugenics externalizes the mind so that it might be reproduced, and improved upon, eventually leading to purely intellectual, all-knowing beings cleansed of their (human) bodies and so making them potentially immortal.

Despite Morton's charge, these novels not only add to the classical arguments "for the state's involvement in, and supervision of, the selection of parents for the next generation," but they produce early versions of an informational, disembodied, and eugenetically engineered future that would influence Galton, much of twentieth- and twenty-first-century science and science fiction, and even Kurzweilian posthumanism itself (not to mention poststructuralism). *A Thousand Years Hence*, for example, is a mostly positive but gently satirical construction of a posthuman eugenics society. *The First Men in the Moon*, on the other hand, is a deeply Darwinian and embodied response to such late Victorian 'posthuman' approaches to utopia. Claeys states, for example, that "albeit, under different guise; [*sic*] the development of eugenics" in these

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Honeymoon in Space (1901), William Delisle Hay's *Three Hundred Years Hence* (1881), Ellis James Davis's *Pyrna: A Commune; or, Under the Ice* (1875), *Etymonia* (1874), *The Great Romance* (1881), H.G. Wells' *The Time Machine* (1895) and *The War of the Worlds* (1898).

texts "remains directly relevant to present debates over cloning and genetic modification in order to promote physical improvement of type" (xv). The real concern of these eugenic utopias, though, is not the physical but the *mental improvement of type*, which makes them even more Galtonian and posthuman than Claeys suggests.

These largely neglected, oddball utopias respond to the same posthuman impulses running through Galton's social theories, namely: the transformation of the body into informational patterns; the externalization of private intellectual and erotic processes as the state takes control of the body; the focus on achieving immortality through rational rather than romantic reproduction (an early form of eugenetic engineering). All of these impulses lead to the replacement of the liberal humanist subject with the virtual posthuman subject—a sort of early automated superman, an almost purely encoded consciousness. What is more, as fictional, rather than scientific, experiments, these novels are free to dramatize the Galtonian process of eugenically engineering posthumans in order to both propagandize and critique eugenic ideology.

Green, for example, imaginatively follows through on Galton's eugenic plans when he dreams a thousand years into the future and looks back on the success of eugenic practices in bringing about a more orderly, sanitized, and peaceful world. In *A Thousand Years Hence*, the body and the material world itself are always on the brink of transforming or dissolving into scientific units, molecules, or particles—when it is not, as with the novel's rendering of a "virtual Victoria," being beamed across time and space. In contrast, *The First Men in the*

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Moon takes issue with such sanguine narratives of the lost body. According to Wells, who held a restless eugenic ideology throughout his career, the body is never truly lost and, like the return of the repressed, will always come back to haunt. Thus, he gives the utopian Selenites a deeply embodied, grotesque, and distorted form. Wells creates a eugenic society in which the body has gone mad. As such, *The First Men in the Moon* becomes the first, and one of the only, parodies of the posthuman.

A *Thousand Years Hence* and *The First Men in the Moon*, like the figures of Galton and Darwin themselves, mirror and invert each other. While providing wildly different responses to Galton's posthuman eugenics, these novels are nonetheless connected by the language, conventions, and tropes of the late Victorian utopia. They carry the same generic code, so to speak. For all their differences—the former a eutopia, the latter a dystopia—they share an early science-fictional focus on interplanetary travel, alternative evolutions, class anxiety, totalitarian political solutions, socialism, women's rights, education, an odd preoccupation with food consumption, colonialism and empire, and technological innovation. In Green's novel, for instance, the science-fictional *novum*, to use Darko Suvin's term, is the discovery of the "cross-electric," whereas in Wells's utopia it is "Cavorite."[101] Both narratives are rather conventionally told from the perspective of petit bourgeois capitalists who write their respective utopias only for profit, immediately turning their extraordinary visions into commodities. Most important for us, they provide intelligence about

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[101] See Suvin's *Metamorphoses of Science Fiction*, p. 64.

the workings of proto-posthumanism in eugenics discourse outside of Galton's own writings. These novels are the two best examples of how Galtonism flowed through Victorian science fictions just as obsessed as he was with engineering new bodies and (post)human beings and with breeding intelligence.

Not much is known about *A Thousand Years Hence: Being Personal Experiences*. Even the author, 'Nunsowe Green,' who also serves 'autobiographically' as the narrator, is a pseudonym. Scholarship on this early work of utopian science fiction, with its fascinatingly 'posthuman' impulses, has been scant to non-existent, not least because Victorian critics have so far been reluctant to scan the late nineteenth-century utopia, along with the nineteenth century itself, with a more posthuman eye. The criticism that exists has been either cursory or critical. Reaction was harsh from the start. An anonymous reviewer for the June 1883 edition of *Notes and Queries* remarks that, although there is "much that is interesting in his book, and several things which will have a tendency to make thoughtful persons ponder," he is "bound to say that [Green] has not the art of carrying us away into even a momentary belief in his impossible story" (459-460).[102] By 2009, however, Claeys found *A Thousand Years Hence*

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[102] Another reviewer did not see much promise in this new genre: "the world has of late more impossible narratives than it can digest. Men have told us of their journeyings round the moon, down under the earth, and far away among the orbs that people space. Few, if any, of these books have brought lasting fame to their authors. Where the late Lord Lytton and Mortimer Collins have met with a small share of success, the gentleman who writes under the pseudonym Nunsowe Green might have anticipated failure" (459).

significant enough to include in his anthology of *Late Victorian Utopias*,[103] yet

his brief introduction to the novel offers little in the way of explaining its

contribution to the genre. Claeys highlights the novel's criticisms of Victorian

bourgeois society, which he argues "are held up to ridicule but are never truly

undermined" (93), while leaving out the novel's crucial status as a prototype of

posthuman science fiction.

      Morton does, to his credit, offer an extended analysis of the novel. Yet he

unfortunately echoes the *Notes and Queries* reviewer when he challenges Green's

scientific knowledge. Just as the anonymous Victorian critic remarks that "there is

much about electrical science in his book, a subject which, we apprehend, he has

not studied very deeply" (460), Morton observes that "the message of *A Thousand

Years Hence* . . . is that among novelists as among theorists eugenic ideals could

exist without reference to considerations brought into notice by the new biology"

(130). Thus, just as critic China Miéville must defend Wells against Verne's

charge that he merely "invents" where Verne "makes use of" physics (xvi)—

pointing out that "Wells's theory of the plausible, rather than narrowly possible,

extrapolation is what makes him such a seminal figure of science fiction" (xvii)—

so Green's novel deserves defending as being "about" something more than

accurate science and prophecy. As Miéville argues, science fiction is, despite

what some of its advocates insist, "like any worthwhile literature, 'about' now,

using a technique of rationalized (rather than free-for-all) alienation from the

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[103] Claeys' recent anthology together with Clarke's anthology, *British Future Fiction*, and Darko
Suvin's annotated bibliography, *Victorian Science Fiction in the UK: Discourses of Knowledge
and Power* (1983), laid the foundations for studies of Victorian science fiction.

everyday to structure its narratives and investigate the world" (xvii). Green's utopia might not be as artistically sophisticated as Wells's but it is, as an investigation into the growing posthumanism of the Victorian world, nearly as culturally important.

Despite Morton's reservations about the possibilities for Green's eugenic science, he does note Galton's probable influence on the novel, stating that *A Thousand Years Hence* demonstrates "the expressed belief (perhaps derived directly from Galton?) that moral health is no less inheritable, and therefore modifiable, than physical" (129). Indeed, Galtonian eugenics is spliced into the DNA of the novel, helping, as in so many late Victorian utopias, to shape its plot. *A Thousand Years Hence* is distinct, however, from those other utopias in its radical and blatant insistence on using eugenics to bring about a new *posthuman*, rather than merely superhuman, future world.

Green's utopia starts in the nineteenth century and purports to relate the "personal experiences" of one 'Nunsowe Green,' a Galton-like member of "Statistical and Astronomical Societies" (2) and president of the Shoreditch and Spital-Fields Universal Discussion Society (reminiscent of the Lunar Society), who always puts "business first" (1). Green's friends, all members of the S.S.U.D.S., each have a different expertise: Black is a scientist; Yellowly is a unionist; Reed is of the merchant class; and Gray speaks on religion (especially Mormonism). Green himself is a financial speculator, amateur statistician, and an expert on population trends. The nineteenth-century author-narrator Green, who

eventually becomes the illustrious ancestor of the dream-induced future Green of a thousand years hence, casts himself as the founder of eugenics.

From the beginning, eugenics is the engine for social change in Green's utopia, as the earth and the other planets, over the course of the novel, build more and more intellectually advanced subjects as the speed of evolution exponentially accelerates the production of the "higher life" forms (293), figured in the novel as the posthuman Upper Solars, an almost divine race who live on the surface of the sun. From the start, Galtonian inheritance connects the plot as the narrative passes from one generation to another, or more significantly, from one eminent Victorian ancestor to his even more illustrious and successful descendant, the latter of which eventually travels to the sun to observe and meet the posthuman life born of a separate yet related evolutionary path, in each case accelerated through eugenic practice.

Eugenics is suggested to Green's mind early on as he turns the meetings of the S.S.U.D.S towards "the forecasting of the future" (34). He explains how eugenics came to him as a plan to rejuvenate a degenerating British society, which he describes as "smoky, dingy, old London," filled with "fever dens," "sewage-poisoned soil," and "narrow, tortuous, and dark ways" (132). On his way home one afternoon, Green comes across "some little street Arabs," one whose "strikingly perfect . . . form and beauty" catches Green's attention as it shines "through all his rags and dirt" (35). Comparing him to the other children, Green could not help but "muse over such striking social contrarieties" and he then and

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there develops "a project which I was fain to put conspicuously into my forecast of our future" (35). The project is obviously Galtonian:

> Suppose, as I argued, we were to gather together all such perfect forms of health and beauty, in order to bring up these nature-favoured persons in an educational and training way comparable with the other superiorities already theirs. Obviously we might have here the beginnings of a superior race, which might not only come to the front, but eventually even resanitate and reconstitute the whole society. I came at last to be quite full of this idea, and even to express a willingness, at some trifle of pecuniary cost, to give a hand to see it practically commenced, on however small a scale at first. But I got no help in this practical direction. My wife called it the sheer nonsense of these upsetting times. (35-36)

The program Green describes is unmistakably modelled on eugenics. Galton never coined the term until 1882, the year *A Thousand Years Hence* was published, although the general concept, as advocated by Galton, was catching on in a culture desperate for social renewal. Green's fictional program does allow for more of a role for the environment, especially in terms of education, and in social improvement than Galton's.

Yet, even in this early outline of the program, Green uses the Galtonian language of "nature-favoured persons" and stresses the importance of grouping children together according to superiorities "already theirs." Education is a form of enhancement rather than acquisition. That Green's plan should be received as "sheer nonsense" by a wife who, throughout the novel, represents conventional opinion, echoes Galton's difficulty in selling his science fictional scheme at first, especially in the 1880s (eugenics had become popular by the time Wells publishes *The First Men in the Moon* in 1901). Throughout the novel, Green (loosely based on Galton?) is characterized as a visionary. Only he, like Galton, can see that the future depends on the cultivation and reproduction of his "little street Arab," out

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of whose perfected eugenic type the Victorian posthuman, like the Upper Solars, would eventually be modeled and improved.

Green's forecasts and his invention of a British eugenics program eventually lead to the science-fictional dream plot. Nineteenth-century Green—who is about to become the emininent ancestor and the originary "self" of the novel—travels to Brighton on holiday. After a stroll on the beach, Green, surrounded by "the last Statistical Society issue" and "some last weekly numbers of Nature with . . . some articles on sunspots and red flames" (43), falls into a dream set a thousand years in the future. He "wakes" in an overpopulated world of interplanetary travel and "laboratorial breakfasts" (45). His dream "descendant"—a future version, or copy, of the old Green (rather than an individualistic subject)—is about to embark on a business trip through the air, which is now buzzing with vehicles, and then underground to a subterranean world where much of the world now lives.

Green reports that the overcrowded earth of the year 2882 is still deeply embodied. The planet is crawling with teeming life from all directions. He describes, for example, a cabby accident in the air as "ugly and uncomfortable": "a precious mess they make, when some thousands of splinters, alike of cabs, train-busses, or human bodies, bundle down, all in some unexpected moment, upon the full tide of humanity beneath" (50). The earth, a thousand years hence, is still searching for ways out of the dense Darwinian tangle; a coldly Malthusian 'survival-of-the-fittest' attitude still prevails. Green writes that "it is marvellous to see how little all these disasters disturb us . . . The wreckage . . . is promptly

removed, the gaps it makes filled up on the instant, and so the daily tide rolls on imperturbably as before" (50).

Yet the earth is in the process of profound technological transformation, brought about by the discovery of the "cross-electric," a method of "crossing" the electric current in order to increase its power and quality (107), and then the "duplication of the cross," and then the "reduplication of the cross" to get even more power over the natural world (the Upper Solars have achieved the "ter-cross" and the "quarto-cross," which humanity believes is akin to amassing divine power). Money has been replaced by 'Energy'. The Atlantic and Pacific oceans have been dredged and filled with people, a giant Crystal Palace-like glass dome has been constructed overhead to keep out the chaos of weather (that no longer exists anyway without oceans), and electric light has everywhere replaced the sun.

Green takes a tour of the "Atalanta Great Consolidated Subterranean," an underground world probably modeled, with its "bright electric light, and artificially imitated tropical scenery" (55), on Bulwer Lytton's sub-system in *The Coming Race*.[104] In Green's underworld, however, "nature"—including gurgling streams and natural green fields reminiscent of the Scottish Highlands—is an illusion. These streams and fields and "all this resplendent scenery of apparent

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[104] Compare Bulwer-Lytton's subterranean world in *The Coming Race* (1871): "Deep below to the left lay a vast valley, which presented to my astonished eye the unmistakable evidences of art and culture. There were fields covered with a strange vegetation, similar to none I have seen above the earth; the colour of it not green, but rather of a dull leaden hue or of a golden red. There were lakes and rivulets which seemed to have been curved into artificial banks. . . At my right, ravines and defiles opened amidst the rocks, with passes between, evidently constructed by art . . . The whole scene behind, before, and beside me, far as the eye could reach, was brilliant with innumerable lamps. The world without a sun was bright and warm as an Italian landscape at noon" 16-17). Delisle Hay's subterranean world in *Three Hundred Years Hence* (1881) is also "glazed in artistic colours" and "thoroughly illuminated" (188).

vegetation is rapidly and cheaply woven out of parti-coloured glass tissue, and is, in fact, everlasting" (61-62). In other words, Nature has become an imitation of itself, a simulation, a copy constructed out of glass particles. In Green's dream, technology has created a non-Darwinian natural world that is easily manipulated and controlled, and that, most important, does not die. Green observes that "there is, of course, an enormous advantage over the periodical decay, and the sere and yellow leaf of mere nature" (62). What is more, humans can now improve upon nature. Although the environment has not yet dissolved into data *per se*, it has taken on a new technological plasticity, a mutability within human control, that allows for humans to augment nature the way Galton wanted to augment the human mind and body, because of its perceived "plasticity," in "Hereditary Talent and Character."

Hence, when it comes to the fragrance of the underground plants, where once, under nature's imperfect rule, "often the most showy plants and flowers have little or no smell, or even an unpleasant odour" (62), now those same "showy" plants can "impart the most delicious perfumes, and keep them exhaling, at our option, night and day, summer and winter" (62). Green asks, "why repeat such defects by exactly imitating nature!" when nature can be perfected upon. He explains:

> In the same free and excelsior spirit, we have not strictly limited ourselves
> to nature's exact forms. We enslaved ourselves at first by a needless
> fidelity of that narrow kind, searching through countless varieties of
> natural form, modern or fossil, for such as most took our fancy. But now
> we give free play to imagination in all that matter, always remembering
> that imagination and its cravings are a part of our nature as much as
> anything else, and mostly too, by far the pleasanter part of it. (62)

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The artist, by definition, like Prospero in *The Tempest*, has the ability to control and manipulate the chaotic reality of nature. The futuristic humans of Green's utopia are born artists, designers, and engineers who are also able to employ technologies, such as the cross-electric, to make nature do their bidding—in fact, to eliminate nature entirely in order to perfect its forms. In contrast to the citizens of Plato's *Republic*, these future humans, like Green himself, view art as an improvement upon flawed, fragile, and finite nature. One pictures Atalanta as a wonky subterranean world of surrealistic distortions and artifice—we are in Green's dreamscape after all—akin to postmodern Vegas. Vegas and the subterranean are sanitized environments; the mud and mulch of the Darwinian natural world disappears. Moreover, once nature is sanitized, tamed or copied so that it is within the realm of human manipulation, it is then ripe for commodification. Hence, Green comments that "these subterranean abodes came to be quite the rage of the time" (55).

In the dream, Green also tells us that his family has been in the provision trade for more than a thousand years, but that the business changed considerably after the discovery of the cross-electric. A thousand years hence and Green's business now engineers food in a process of "laboratorial organic production" (66). Green no longer waits for the "slow old processes of natural growth in the superseded prairie or pigsty" (65). The growing population left no room for traditional food production, or "natural food-raising ways" (84), and so the industry employed the new technology to move towards the "imitation of life-action" (67). They are now able to "facture organic substance, giving to it all the

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aspect and nutritious quality of the live and nature-made article" (67). Like the "natural" world of the subterranean, food itself has become an illusion; its content and supply has become manageable through technological processing.

Food has become literally posthuman—it is posthumously produced. In one of the work's most playfully satirical moments, Green explains that "laboratorial organic production" actually means reconstituting the dead into food. The earth's crowds in the year 2882 must, in other words, turn to cannibalism in order to survive. Grandma's structure is broken down and dehumanized for the benefit of a growing populace that would otherwise start to degenerate through malnourishment or starve. Through technological innovation, the dead can now be used as "valuable masses of natural organism, ready-made and cost-free to society's hand" (71). These future humans are now able to reduce, through 'atomic analysis,' "all previous structure to the ultimate atoms. The less complete we call the Molecular; and the great question ever is, how far this needs to go" (71).

Throughout the alternative or future history of *A Thousand Years Hence*, the human body is threatened with disintegration, is on the verge of utter dissolution, and is sometimes reconstituted into biological bits or data; in this case, human flesh is re-embodied into particles at the atomic and molecular levels in order to form food. Green's particulate vision of the human seems influenced by the science-fictional spiritism of the French astronomer Camille Flammarion. Flammarion's bodies of the afterlife, in *Lumen* (1872) for example, are also constituted of atoms which are re-composed after death (albeit in decidedly

different ways).[105] Yet in Green's story, these disintegrations, at least until we get

to Upper Solardom, seem to reflect an anxiety, along with an excitement, about

the growing posthumanism of Victorian society. Green astutely notices the

potential threat to the integrity of the human body, and to the material world as a

whole, that biotechnological advances such as eugenic engineering, electricity,

and increasing scientific instrumentalism could bring about. *A Thousand Years

Hence* identifies, and often celebrates, the scientific threat to the liberal humanist

subject. And yet sometimes the crowds of future humans Green describes merely

appear to be eating their own.

The significant question for Green is not the ethics of cannibalism. He is

not disgusted by the thought, which itself suggests a new relationship to flesh.

Indeed, the author seems satirically to suggest that cannibalism, long associated

with the colonial Other, makes even these intellectually-advanced, and

eugenically-enhanced, post-Victorians "savages" compared with the posthumans

he would meet in Upper Solardom. Instead, he is comically concerned with just

"how far must chemical analysis proceed to entirely *dehumanize the subject*,

without, at the same time, needlessly destroying and wasting natural molecular

structure, and the inimitable superiority of the mellowing flavour that comes of it"

(71; my italics). Green, who, after all, now trades in such biotechnological

cannibalism, cannot resist the look of his friend Brown's step-grandmother, "a

remarkably old and portly lady, who had accumulatively secured her own goodly

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[105] After his death, in his conversation with Quærens, Lumen states that "in the world on which I had just landed, the inhabitants are not incarnated in gross form, as we are here below, but are free beings" (10).

share of phosphates and other valuables in the chemico-provision line" (70). In fact, Green admits, "I had had my eye, preparatorily, on the old lady for some time" (70).

The structure of *A Thousand Years Hence* jumps, using the dream trope, from 1882 to 2882 just as the earth is morphing into the posthuman or "higher life." The planet enters a state close to the fantasy of the "electrical sublime," figured in the nineteenth century as utopian homogeneity—a concept in direct contradiction to the liberal celebration of individual expression—whereby, first and foremost, everybody speaks "one and the same language" (128).[106] However, the novel soon embarks on another journey, through space and linear time, as Green takes a business trip to the stars, passing the time en route by writing a "retrospective history of the last thousand years" (76), appended with a book of their solar adventures.

From this point, the novel becomes, primarily, a teleological history of how eugenics leads to the posthuman (although, along the way, Green cites other causes of social progress, including improved education, unionization, women's suffrage, and political reform). The narrative shows how Green's Galtonian

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[106] This "new England" is not only a eugenic but a white supremacist state, a fantasy of world empire typical of late nineteenth-century utopia, the best example of which is probably Delisle Hay's *Three Hundred Years Hence*. Green describes his fantasy empire thus: "'Old England' has now finally disappeared from the earth, alike in her distinctive nationality, as in her physical islandic [*sic*] outlines of once familiar sea-coast and scenery. In the contest of races which has been going actively on for the most part of the past thousand years, and in 'the survival of the fittest', we English, along with the races kindred to us, have everywhere carried the day, and everywhere all others have been crowded off the world's too narrow surface . . . John Chinaman's prolific race was amongst the very last to succumb to the universal intrusion of our vigorous section of the white skins. The conjoined British and American Empires had at last everywhere predominated, to overspread our earth with the English speech and Kelto-German races" (82-83).

program produces more informational beings and fewer liberal subjects until the traveler finally reaches the Solar state of hyper-technological Flammarion afterlife. In his history of the earth, Green focuses on how the selected breeding of intelligent humans, and later different evolutionary beings, leads to accelerated technological progress of the kind Kurzweil celebrates in *The Singularity*. Throughout, the body and the material world are gradually dissolving into particles and information.

The posthuman metamorphosis acts as a kind of cleansing: physical, mental, social, and moral. It starts, in Green's account, with "the sanitary reconstruction of London" (98), the complete rebuilding of the old city—figured as polluted, diseased, and infectious—from the ground up.[107] City planners "decided to eject entirely the old and fetid soil, and reconstruct the city over a clear and roomy subterranean" (138). They also rid London of pollution—the "smoke nuisance" (140)—and, with the help of electricity, a "new London" arises "entirely smokeless" (140). The paradise that emerges from the ashes of London is, like Atalanta, a more controlled and contained space. It is a Galtonian cityscape, weeded of its Dickensian alleyways and Darwinian tangles. As Green notes, social and moral resanitation inevitably follows as the "criminal class" is turned out of its "long-accustomed dark dens and recesses of old town life, which had previously sheltered from view the owls of the night" (169). The new utopian London is no longer the creepy, gothic London of *Strange Case of Dr. Jekyll and Mr. Hyde*, but, as is consistent with posthuman culture (with its surveillance

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[107] Delisle Hay provides the best example of this figuring of London as polluted, diseased, and festering in *The Doom of the Great City* (1880).

cameras), becomes its opposite—an exposed space with no room for secrets or mystery (all of which have been deciphered through cognition and/or 'intelligence').

The environment of this more posthuman London, however, cannot entirely save the city from criminals, vagabonds, and gypsies, groups that were now being labelled, by Cesare Lombroso,[108] Galton, and other researchers in the emerging field of criminal anthropology, as congenitally defective. The social and moral resanitation of nineteenth-century London—the period in which Green starts his retrospective of the future (a temporal structure reflecting the breakdown of narrative integrity alongside the integrity of the subject)—would require stronger measures. According to Green, "the end in view was no less than the complete extirpation . . . of all the hereditary professional criminal element, and . . . of all the diversified heritage of professional mendicancy" (168). The scientific solution was eugenics. Green reports that humans had "now turned our attention to repressing, by all reasonably practical means, the *progenital continuation* of the bad and worthless existing elements with which we were thus waging war. 'Like parent, like child'" (169; my italics).

Green's Galtonian ancestor, the original narrator, had founded eugenics and put the earth on the road to posthumanity. Green notes that his "noble-minded and disinterested ancestor" could not have foreseen "all that was ultimately to come of his novel idea" (226). Like Galton, he "had first to fight his battle against universal opposition" (226). Progress was slow, "but the idea afterwards gained

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[108] See *Criminal Man* (1876).

ground, and, ere its author left the world, he saw the promise of its substantial

success" (226). As with Galton, Green's ancestor imagined a world where

biological inheritance would replace inherited wealth as the criterion for entry

into the ruling class. Criminals and vagrants would be eliminated through eugenic

segregation and sterilization. According to Green, the new policy—a more

sophisticated version of Galtonian eugenics—would invest in both nature *and*

nurture to improve the race; thus, every child "even of the most questionable

origin, which did get into the world, should be properly cared for, so as to give it

all the best chances" (169-170). However, the state would also take "all the care

possible" to ensure "that as few more of such children as might be should follow

them" (170).

On the other hand, the decadent nobility—whom Green satirizes as the

"Accidents" on Mars—had to be replaced by the superior biological humans

eugenically bred from below. In Green's future, "long battles over primogeniture,

entails, and other remnants of an old feudality" cease (190). Natural inheritance

gradually replaces aristocratic, which was increasingly seen as artificial and

inauthentic inheritance. The new humans believe that the "vicious habit of

provision-making for heirs and descendants, instead of allowing them the

healthful stimulus of fighting their own way in the world, must be. . . checked"

(190). The aristocratic Selphnil family, for instance, once "primogeniture and

entail laws and other artificial family props" had been removed, "fell all behind in

the common race, and sad to say, its last representative died in the public charity" (228).[109]

Thus, for Green, as for Galton, Victorian eugenics serves, fundamentally, as a weapon in the growing class struggle between new and old money in Britain, between the rising 'meritocracy' and the declining aristocracy. Green, like Galton, feels social progress will only be possible when a new intelligentsia is allowed to replace the traditionally merit-less nobles as the ruling class. In Green's utopia, as in Galton's, "the great minds of each country were marshalled forth into international prominence, and were thus constituted into an international nobility" (194). These intellectuals would eventually provide the eugenetic material for a new data-processing posthuman elite. Still, Green, like Galton, must rely on biotechnological versions of the old peerages to give shape to such a future. The old hereditary aristocratic structure, after all, was not a liberal human one; Green notes, for instance, that "the staff and stay of Selphnil greatness was 'the family'" whereby "the mere individual personality disappeared" (229). Likewise, the "staff and stay" of the new intellectual elite was also the links to past and future provided by "the family." In the new eugenic model, however, the individual personality disappeared into the family's biological inheritance rather than its money and titles.

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[109] The last Selphnil was Freddie Selphie, whose "proper family and baptismal designation" Green satirically deems "Frederick Adolphus Constantine Maximilian Ferdinand Alphonso Nicholas Wilhelmus Napoleon Caesar Augustus Tiberius Selphnil" (229).

Yet even the eugenic production of this new intellectual elite required voyeurism and surveillance. Indeed, eugenic courtship, marriage, and parenting—as with Galton's early utopian vision in "Hereditary Talent and Character"—became a spectacle consumed and policed by an international public. The state needed to monitor sexual couplings to ensure, first and foremost, that each child was an advance on his or her parents. In the brave new world of Green's utopia, the State often intervened in marriage:

> By way of *publicly* exemplifying marriage suitabilities, certain national selections would be periodically made of both sexes; and if these selected suitabilities, thus theoretically mated, afterwards mutually agreed to actual marriage, they became, in a certain sense of social consideration, the State's family, and any children they might have were to be regarded with more or less *public concernment*. This procedure was, in fact, no other than a very high-class scientific experiment, and society was then sufficiently advanced to so regard and benefit by it. The children of such State marriages were usually, as fully expected, the most perfect of their time. Any other result would have been as surprising to all, as indeed it would have been reprehensible to the parties more immediately concerned. (207-208; my italics)

The public scrutiny ensured that reproduction within the utopia was rational rather than romantic or erotic. After all, the erotics of romantic love implies the sort of mystery, secrecy, privacy, and intimacy that could not be tolerated under the new panoptical, posthuman regime. Sex becomes quasi-pornographic in its public titillation. It also becomes commodified as wagers are placed on potential eugenic pairings. Indeed, in Green's utopia, as in Galton's, eugenic mating becomes a 'reality show' or sports match. Green describes it as a "national rivalry and challenge" comparable to "horse-racing, cricketing, and such like" (216).

The ambitious goal of these public matings in *A Thousand Years Hence* is, however, to produce not just an intellectual elite but superior persons "who had a

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natural tendency towards a special and separate order—the order, namely, of *perfect sanitude in mind and body*" (227; my italics). The minds and bodies of the Victorians, Green implies, needed to be sanitized, and were being sanitized, through eugenic techniques that granted them a measure of control over their own unreasonable minds and unruly flesh. These post-Victorian soon-to-be cyborgs sought to rid themselves of flesh by refusing to marry the deeply embodied upper and lower orders, the first being decadent (or impulsive and pleasure-seeking) and the second being degenerate (or unable to control bodily functions). Thenceforward, Green states, "we started as . . . a renovated race" (228).

The (dis)embodiment of the "renovated race" comes in the form of a new 'virtual' Queen Victoria who arrives in the twenty-fourth century of the retrospective to replace the hereditary monarch of Green's own nineteenth century. The Queen Victoria of the future does not reach her throne through a noble inheritance, however, but through merit. In fact, the new Victoria, even as "a lineal descendant of the old royal race of her country" (256), and even though "she bore the "high and ancient name of Victoria Guelf" (256), must compete for her "crown of labour" (256). The competition is a posthumanous version of the Olympics, "a revival of the early Greek games," but with a "higher and more ambitious moral" (256). Instead of "mere feats of body or mind, it concerned the useful work of the whole life" (256). The competition starts, fittingly, with an archive of data and information about the candidate, a "truth-telling pile" (258),

that would swell out "meritoriously in some directions, [contract] in others, and of an average bulge elsewhere and so on" (257).

The new Victoria becomes 'virtual' during the finale of the *American Idol*-style eugenic competition when she is asked to give a speech that will project her image to an international audience. Victoria is expected to stand by her "testifying document" and wait her turn for "an explanatory or justifying address" before confronting the judges and the 'virtual' audience "which constituted the ultimate jury of the great trial" (258). The audience, according to Green, was made up of "millions of eyes and ears" (258): "Telephones and photophones conveyed the voice clearly to all distances" (258). The surrounding "reflectory apparatus" sent Victoria's "reflected self" to her audience along with her voice. While Green's technologies here prefigure film and television, we also recognize a relationship with her audience that is two-way and visually evocative of computer imaging. The new Victoria is a projection of particles and pixel-like pointillism (developed by Seurat four years after Green's book). Her subjects no longer know her through the "real," or through her image printed on the "real," but through the re-embodying, or disembodying, screen version of "reality."

The culture that Green produces in *A Thousand Years Hence* becomes increasingly informational, data-based, and posthuman as the narrative progresses. Newspapers, for example, those "huge cumbrous" broadsheets of the nineteenth century were first reduced to "tiny four-inch square microphied photograph[s]" which could be "doubled into the waist-coat pocket, and all its full category of news and events read with ease through the common diamond

magnifier" (287). Soon, however, printing technology was even further improved, and "copies upon copies, in broad sheets, comprising each thousands of separate newspapers, are reflectively flashed off with the rapidity of ordinary light travel" (287). The body of information, in this case the news, increasingly dissolves into the speed of light. Knowledge is flashed instantly across the universe, as still "more and more copies, and quicker and yet quicker printing were wanted" (288).

According to Green, "as years and centuries rolled on, there came at last the great art of transparent printing, by which thousands of great sheets of transparent material, consisting each of thousands of separate newspapers, can now be simultaneously permeated by the printing rays" (288). Although the technology here is purely imaginary, and nearly incomprehensible, the "art" of transparent printing suggests a further move towards the dematerialization of the news industry. Knowledge now flows invisibly through space, setting up a new informational reality—whereby information *is* knowledge—filled with highly informed beings. Soon, as Green finds out in Upper Solardom, there will be no need for newspapers at all since telepathic, telegraphic human beings would always already know everything.

One of the most interesting examples of the growing sense of posthumanism reflected in Green's retrospective is his account of humanity's new ability to take photographs of the past.[110] Here, time itself is converted to information as history and memory are preserved within archives as photographic "facts." Cross-electric technology allows humans to "fish" for moments in their

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[110] Green perhaps got this idea from Camille Flammarion's *Lumen* (Part II).

own genealogical histories. Green observes that a growing number of Galtonian families, who record every ancestral detail—as Galton encourages families to do with his *Life History Album* (1884) and *Record of Family Faculties* (1884)—now dip into the past to retrieve precise information about the physical and mental state of their ancestors. In one of the more clever, but also meta, postmodern, and self-referential scenes in the novel, Green's own family, a thousand years hence, "fishes" for a scene from the same holiday in Brighton during which Green dreams up the future self now fishing for the scene! The dream-Green of the future, and Green the 'author', "fishes" into his own narrative, clicking on a link to the past (or to his own story's beginning), in order to retrieve a lost image that fragments the linearity of the narrative, of time itself, and of the autobiographical liberal self, the latter of which Green struggles to maintain throughout his resistant utopia, as if he does not consciously understand how his story is mutating into the posthuman.

The image they receive with the still imperfect technology, however, is comically disappointing. Their "venerable father," who "appeared to be busy drawing a beer-bottle cork, had also his stooping back to us, and moreover, by the embonpoint of his goodly figure, was shadowing from our view about one-half the rest of the family" (279). They must go fishing again to catch a more informative image about the family, an image that can be seen clearly and from the proper perspective. Here Green shows how the new posthuman "reality" undercuts Victorian pretensions to objective knowledge. He playfully, and perhaps a little anxiously, points out the limitations of a new technological

"reality." Photographs themselves construct knowledge rather than record facts because they frame "reality" subjectively. The posthuman mode always implies a "reality" dissolving into pixellations, or fragments of truth, and in so doing calls the pursuit of knowledge into question. Theories of this sort have broadly framed the epistemological debates about our own posthuman "enlightenment." And yet Green, the Victorian 'author,' is not quite ready to give up on a more orderly reality as his own 'autobiographical' efforts to construct a linear narrative out of a linear past, or "retrospective," indicate. Indeed, there is marked tension in the utopia between the dream structure, which fragments reality, allowing him to jump through time, and, within the dream, his linear account of history, which presents time as more "real" than surreal.

Just as Green the capitalist speculator (both author and character) insists on building a linear narrative, so the businessmen he creates inside the narrative are intent on constructing and commodifying history by turning it into grand visual narratives. These grand historical narratives are constructed from the photographs which families "fish" from the past. They make a business out of building up vast archives of these photographs and reconstructing "more or less" complete histories and even physical geographies of the earth's past: "In fact, between the many of these dealers in the past, every day, hour, even minute, aye, and at times even succession of seconds, might be pieced together backwards out of all their arrears of records" (278). Hence, they watch "the very act of their history-making" (281) as scenes from ancient Greece, Rome, and Egypt flow before them. Even "Old Livy has been caught in the very act of writing one of his

lost books, seated one bright day in the central al fresco of his own home; and thus three sheets have been recovered, while others lay temptingly about, but, alas, with their tablet faces downwards" (281). Once again, knowledge is fragile and dependent upon perspective as much as fact accumulation. Indeed, as Green observes, these archives eventually became a problem as the mass of materials, images stored on "actual photographic paper," start to overwhelm a world already tight for space. Fortunately, people devise a technological solution that loosely resembles, although Green's invention is obscure, the computer database; he notes that "through the medium of colour-sound . . . by which we could transfer and store up the mode of that sound, so as to reproduce and retransfer at pleasure all the photographic hues and aspects, the whole case . . . and all its old accumulating difficulties dispersed" (278). Through the miracle of technology, the material world is re-embodied or "dispersed" into a less clumsy and more ethereal, eternal form.

By the end of Green's retrospective—within Green's utopia—the earth has not only converted time to information but the planet has managed to successfully link itself to the millions of cyborg subjects, speaking to each other in universalized codes, inhabiting a cosmic network of planets that have achieved the "Higher Life." As Green describes it, the "Higher Life" can be understood as a perfect state of post-human subjectivity—a 'crude' Victorian version of the kind Kurzweil and others dream of—where disembodied or technologically-enhanced AIs (artificially created, public, informational, and immortal subjects) rule the

universe. The "Higher Life" is achieved only after the acquisition of interplanetary telegraphic technology, which allows the more evolved planets to guide their inferiors toward a new state of enlightenment.

To this end, Green re-envisions, as both Galton and Wells did, a fascinatingly science fictional moment of Victorian history, the Mars opposition of 1892,[111] as coinciding with the first interstellar signals sent to another planet. Before the earthfolk of Green's imagination are able to travel physically to outer space, they "transmit . . . [their] minds in messages" (264) through the wires. Thus, like Wells and Galton, Green reconceives telegraphic, and telephonic, technology as reaching outward from the earth towards Mars but also, in Green's vision, Venus. In fact, in Green's tale, the more evolved inhabitants of Venus, "our confessed superior" (273), contact the earth first as they have been appointed, in a reversal of British colonial ideology, to guide the evolving humans towards their inevitable posthumanity. Green reports that, on "one memorable day, a cry was raised, and at once reverberated over the world" (272). A message had been received from outer space:

> Almost on the instant of the connection being linked, there appeared a play of bright light at the extremity of the 'pointer'. While all were wistfully gazing at this phenomenon, a voice suddenly electrified the assembly with the suggestion that this play of light was no other than the energy-waste of transmitted speech, which we were as yet unable to deal with. (272-273)

The moment is one that both Galton and Wells would also later fantasize about in their own fictions; they had both imagined a time when humans might

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[111] See Paul Fayter's article, "Strange New Worlds of Space and Time: Late Victorian Science and Science Fiction." *Victorian Science in Context*. Ed. Bernard Lightman. Chicago: The U of Chicago, 1997. 256-280.

communicate, through universal telegraphic codes, with life on other planets. In Green's future world, it does not take the earthfolk long to comprehend the message. At first they hear "a "Venus voice pouring into our ears, just as though the speaker were close alongside of us. It was a low and monotonous chant" (274). But soon, through their eugenically-produced intelligence, they are able to decipher the chant and reply "in the like strain, in token of our common understanding; and thus the two worlds were in established communication" (274). Venus was then able to start gradually teaching the earth "the language of that Higher Life" (274) through which they would devise their new posthuman identities.

After Green's friend Black discovers the reduplication of the cross-electric in 2882—an event only made possible by the increased intellect of humanity after achieving the "Higher Life"—humans are "enabled to transmit not only our minds in messages, but also our material selves into far space, in order to meet and commune personally with other beings there" (264). Green's retrospective is at an end. He now begins observing the terrain and local customs on several planets and moons, including Mars, Venus, Mercury, and Vulcan. He is particularly fascinated with the eugenic customs on the first Jovian moon and describes in detail their system of "rational reproduction" through the public display of bodies for spousal and parental inspection. Every morning Green and the elderly Jovians stroll down the voyeuristic path "between the separate bathing-places of the two sexes," known as the "Esthetic Walk" to watch "the neat slim young figures" (344). According to Green, "all these seniors, and any others so inclined, may

refresh their eyes with the pleasant and lively spectacle" (344). Even the future

Green of the year 2882, however, is a Victorian and cannot help but wonder as he

"gazed down upon it all . . . what my good wife would have said to such on-

goings and, still more, to her better half quietly enjoying them" (344).

The consumption of such a spectacle, however, like the turning of

Galton's Hottentot Venus in *Tropical South Africa*, is meant for more than just

pleasure. These public-baths are meant to display "the perfect health and perfect

form" of the Jovian body, to which they attach very great importance (344). These

dintinguished Jovian bodies are separated from those of "the common public

bath," however; they are on display in the Esthetic Bath. The Jovians are so

discriminating that, "if any one else wishes to enter this particular bath, he or she

must don for the time a slight dress" (345). This way the on-looking public,

"expecting only the perfection attributable to the place, may not be presented with

forms . . . more or less defective" (345).

The Jovians use these baths primarily for sexual selection. The baths "are

separated only by the slightest of open gratings" which affords a view of "many a

fair young maiden" sporting about and "giving the loved one, in the adjacent bath,

every opportunity he could wish to satisfy himself as to the perfection of his

future wife" (345).[112] But on the first Jovian moon, as on earth, the loved one does

not have the final say. Here marriages are 'rationally,' even scientifically,

arranged by cooler headed relatives and medical practitioners:

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[112] More's Utopians have a similar practice. When they are thinking of getting married, "the prospective bride, no matter whether she's a spinster or a widow is exhibited stark naked to the prospective bridegroom by a respectable married woman, [and] a suitable male chaperone shows the bridegroom naked to the bride" (103).

> When an engagement seems likely to take place, the parents on both sides, not altogether trusting the discernment of the parties themselves, through the usual mists of love's spectacles, may be seen repeatedly upon the Esthetic Walk, accompanied by the family doctor, and contriving a much more direct inspection. (345)

Just what potentially invasive medical procedures this "much more direct inspection" might entail can only be uncomfortably imagined. Yet, as these deep concerns about the health and form (and conformity) of the body demonstrate, eugenic sexual selection on the first Jovian moon privileges physical over mental perfection. Such an emphasis is considered backwards compared to the earth's "higher" practice of privileging the mental over the physical. The Jovians have not yet evolved; hence, "we Earthians are greatly looked up to, and held in most flatteringly reverential consideration by these simple Jovians" (340).

The Upper Solars, on the other hand, have evolved far beyond the human. They have reached the "Higher Life" several times over and are now fully formed posthumans. As Green puts it—not having access to twenty-first century jargon— the Upper Solars "form an upper class of extremely higher human attainments" (364). They keep as aloof from humans and lower solars as humans themselves "would do from a herd of monkeys or other inferior beings" (364). They are described as "cold," "methodical," "unvarying," "most ungenial," and "almost austere-looking" (368). They resemble machines but think like computers, cyborgs, or AIs. Indeed, these biologically enhanced, technological self-generators have developed an additional "causation or reasoning" sense for communicating with the outside world (368) that is phrenologically displayed on the head. They have "a special set of nerves "proceeding direct outwards from the

middle of the frontal brain—the skull in that part having two small openings, by way of intellectual eyes, situated an inch or two above the ordinary eyes" (368). This enhanced reasoning sense shocks Green as he explores Upper Solardom for the first time; he would have previously thought such power was "altogether superhuman and restricted to Deity" (368).

The new sense allows the Upper Solars to communicate—using the codes of "the universal telegraph language"—with each other and with other highly evolved creatures from other planets telepathically.[113] Language, for the Upper Solars, has become wireless, informational, and disembodied (without gesture or sound). Thus, the Upper Solars have no need, although they possess the capability to travel to other planets since "communications by mind are already perfect and constant with all Upper Solar life throughout the universe" (374). They can, after all, communicate ideas with a "rapidity almost infinitely beyond mere speech making" (376). Indeed, according to Green, "they classed us mere speech makers as an inferior race, and more allied to anthropoids than to themselves" (376).

The Upper Solars represent the completion of humanity's evolution beyond itself. Intriguingly, Green notes that the Upper Solars' new sense was "a *human* acquirement" (368; my italics). The Upper Solars are post-*humans* rather than sun people or gods because their evolutionary antecedent, at least according to Green, is a human who—through a combination of eugenic breeding for natural characteristics and the development of acquired characteristics through adaptation to the advantageous solar environment—morphed beyond himself into a new

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[113] Here Green anticipates Galton's theory of interplanetary communication, presented in his 1896 *The Fortnightly Review* article, "Intelligible Signals Between Neighbouring Stars."

hyper-intelligent species capable of limitless technological enhancement. The Upper Solars may have evolved on another celestial body—the sun—but Green's (slip-of-the-pen?) reference to the new species as "human" suggests he is imagining a future not just for solar folk but also for people.

Green's treatment of the Upper Solars uncannily echoes, and perhaps helps generate, twenty-first century imaginings of the posthuman. The pseudonymous author infuses these ruling sun people with the same Galtonian traits and impulses we have identified with the posthuman throughout this study. The mental processes of the Upper Solars, for example, are externalized. They have solved all intellectual problems, leaving no mysteries inside or outside of their own minds. The additional 'superhuman' sense has given them "the faculty of knowing either ourselves or each other so completely, that, if all affecting circumstances can be known or given or calculated, our conduct—that is to say, all our thought and action—could be predicted under any or all those circumstances for all time coming" (369). All is made known in Upper Solardom.[114] These scientific prophets have discovered the secrets of space and time, and so can predict and control their own evolution (which was always the aim of Galton's statistical form of eugenics).

They are completely informational and technologically re-embodied (if not fully disembodied). Green does not describe the sexual practices of the Upper

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[114] Those lower down on the evolutionary scale, on the other hand, still live in mystery and deception: "The upper life cases are in this respect much simpler and easier dealt with than ours of the lower life, as we are ever apt to irregular and 'tricky', and to conceal or confuse thought and intention by non-conformable outward expression. There is no double dealing of this kind in the grave straightforward Upper Solar Life" (369).

Solars, as he does the Jovians, but he leaves the impression that these

technologically advanced creatures have moved beyond the need for sex as a

means for reproduction just as they have moved beyond the need for food.[115] The

homogeneity of the race suggests they can copy or clone themselves as they have

no further need for eugenic advancement (that biological practice has reached a

successful end). Indeed, a tour of an Upper Solar house reveals these beings as

purely electrical. They are made of currents and wires; they are flows of

information. Green observes—in the "private" quarters—that "what must have

been a bed . . . to us looked more like an electric battery" (377). The Upper Solars

"lie down in a head-to-foot magnetic current, which composes at once to sleep,

while a clock regulation, by arrest and reversal of the composing current, after so

many hours, causes immediate awakening" (377). The Upper Solars are

programmed, or program themselves, like computers. They are artificially

selected forms of artificial life. They have evolved beyond the body and so

beyond all that is identifiably human.

They are able to recharge their lives just as they recharge their days. Green

explains that, although the Upper Solars accept their own death and extinction

(unlike Galton and the late Victorian eugenicists), they are potentially immortal.

Even if their own sun cooled, as predicted, "it would be within the power of their

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[115] As Green describes it, "there is one curious physical difference between them and us, in the absence of a stomach and bowel system like ours. As they imbibe, in their advanced chemical ways, only the exact kind and quantity of the nutriment needed for the system, there is neither excrement nor excrementary passage; and of course there is never either the worry or the savour of a sewage question in Upper Solardom" (373-374). According to Kenneth Folingsby's utopia, *Meda: A Tale of the Future* (1888), "all the troubles of the earth were due to excessive eating and drinking. They stated, and stated, as we now see truly, that if eating and drinking could be dispensed with, man's intellectual power would increase, and permanent morality would be ensured" (155).

science to effect a timely escape to other suns, more or less perfectly suited to them, and having yet millions of generations of life before them, which are in full communion with them, and where they would be loyally welcomed" (372). And when it comes to death, too, these superior creatures are terribly reasonable, perhaps more so than any race Galton himself could have envisioned, for they never adopt any such plan. Instead, they reflect on the fact that they "will not be missed" in the new posthuman universe, "in the many millions of the peopled suns of Upper Solar life attainment" (372). The Upper Solars, like other Victorian Christians and spiritualists, take comfort "that there is still more satisfying eternity for all of them in that spiritual life of the future, which is the common heritage of man" (372).

Thus, as we wake from the dream of *A Thousand Years Hence*, we realize that Green's vision, while unmistakably posthuman, is not entirely Galtonian. Indeed, Green's finishing flourishes raise some concerns about the state of a world made by Galtonian posthumanists. After briefly travelling ahead to the year 3883—in the manner of *The Time Machine*—Green's eyes open in another dream, or nightmare, of an earth that has now been honeycombed. There are now fears, two thousand years hence, about a coming end to the earth's very materiality. The planet's remarkable technoscientific progress to the "Higher Life" has had some unexpected consequences. Like their post-Victorian antecedents, who were forced to eat their own dead for sustenance, so these new transitional beings have created a planet that is consuming itself. The danger of the future, Green admits, "was not a scarcity of phosphates or of any other substance in particular, *but of substance*

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itself in general; for what were we to do when by the increase of human bodies all the earth's substance had been absorbed? Were we to prey upon the other orbs of space, and thus increase our earth into unknown future dimensions" (384-385; my italics)? It is a question that we, over a hundred years later, are urgently asking. As we become posthuman, we, unlike the Victorians, are faced with the practical, not theoretical, prospect that we have already consumed too much of the planet. No wonder we are now seeking disembodiment.

If *A Thousand Years Hence* is about the posthuman end of flesh, then *The First Men in the Moon* is about its gothic return. For Wells, the material world cannot just dissolve according to humanity's whims. Darwinian nature—in all its fleshiness, materiality, and entanglement—will have the final say. In his scientific romances, especially, Wells presents his egoistic yet misguided characters—representative of humanity in general and imperial Britons in particular—as overwhelmed by nature. For all their scientific, intellectual, and physical bluster, Wells's 'macho' anti-heroes discover their own finitude and powerlessness when confronted with the unknown and infinite wilderness of the future, outerspace, or a foreign land. Unlike the often unironically transcendent, all-powerful, immortal, imperial, conquering types of other late Victorian scientific utopias, such as Green in *A Thousand Years Hence*, Wells's adventurers are decidedly mortal, non-transcendent beings. Indeed, Wells often satirizes the hubristic, imperial conceits of other late Victorian utopias.

In *The War of the Worlds* (1898), for example, Wells reverses the imperial metaphor and has his "posthuman" Martians overcome by bacterial disease, rather than human force.[116] In *The Time Machine* (1895), he devotes the end of the novel to sublime scenes that show the Time Traveller overwhelmed by the enormity of the universe.[117] In *The Island of Doctor Moreau*, Moreau falls victim to his own fantasy of playing God when his surgical experiments in speeding up evolution backfire as the bodies and minds of the island's animals revert from intelligence to instinct; Moreau learns it is not so easy to subject the flesh to human will. *The First Men in the Moon*, however, is Wells's most direct response to the proto-posthuman ideology running through the utopias of the late Victorian period. As if by way of an answer to these dreams of disembodiment, surveillance, and immortality—these fantasies of human control over nature—Wells delivers one of his most satirical and deeply embodied Darwinian novels.

Moon is also the novel that most directly addresses the question of eugenics, and critics have been divided about the extent to which Wells endorses Selenite eugenics practices.[118] As Miéville argues in his introduction to the novel, Wells infuses his descriptions of the lunar eutopia in *Moon* with his trademark ambivalence. On the one hand, humanity's savagery in war and politics is

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[116] See Alistair Brown's "Rereading Posthumanism in *The War of the Worlds* and *Independence Day*." *E-Sharp* 12 (2008): 1-25.

[117] Here is the scene from *The Time Machine*: "Beyond these lifeless sounds the world was silent. Silent? It would be hard to convey the stillness of it . . . As the darkness thickened, the eddying flakes grew more abundant, dancing before my eyes; and the cold of the air more intense. At last, one by one, swiftly, one after the other, the white peaks of the distant hills vanished into blackness. The breeze rose to a morning wind. I saw the black central shadow of the eclipse sweeping towards me. In another moment the pale stars alone were visible. All else was rayless obscurity. The sky was absolutely black. A horror of this great darkness came on me" (201-202).

[118] For a sampling of the criticism, see Anne Stiles' "Literature in Mind: H.G. Wells and the Evolution of Mind." *Journal of the History of Ideas* 70.2 (April 2009): 317-339; Peter Morton's *The Vital Science*, 133-135; and China Miéville's "Introduction" to *The First Men in the Moon*.

"unfavourably counterposed to the Selenites' rational, ordered system" (xxv).

According to Miéville, Wells's "statist, rationalist and ordering socialism finds a

partial expression in the lunar system" (xxv). On the other hand, however, "there

is something discomforting about this utopia of order . . . Brilliantly, this satire is

aimed at Wells's own society *and simultaneously* at a supposed 'rational'

alternative" (xxv). *Moon* expresses "the contradictions in the very categories of

Wells's thought" (xxxvi). In *Eugenics and Other Evils* (1922), G. K. Chesterton

describes the flexibility of Wells's mind, which he argues separates the novelist

from the blind intellectual certainty of more typical eugenicists:

> As a matter of fact . . . so far from being definite, [Wells] is generally not
> definite enough. He is an absolute wizard in the appreciation of
> atmospheres and the opening of vistas; but his answers are more agnostic
> than his questions. His books will do everything except shut. And so far
> from being the sort of man who would stop a man from propagating, he
> cannot even stop a full stop. He is not Eugenic enough to prevent the black
> dot at the end of a sentence from breeding a line of little dots. (69-70)

According to Chesterton, Wells's mind is open and constantly in a state of

(re)generation, unlike Galton's, for instance, which is monomaniacally attached to

a single idea. His mind is not clean and orderly but productively Darwinian, a rich

and diversified tangled bank of experimental ideologies that undoubtedly find

their most eloquently figurative expression in his science fiction.

Yet Wells's notorious ambivalence and open-ness—his willingness to

refine his ideas—can be confusing for modern scholars whose job it is to search

for patterns and resolutions where sometimes there are only contradictions. It has

been difficult, for example, for scholars[119] to square the Wells of *Anticipations*

(1901), in which he calls for the eugenic sterilization of failures,[120] with the Wells

of *Mankind in the Making* (1903) and *A Modern Utopia* (1905), in which he calls

for an anti-eugenic minimum wage to help the poor.[121] John S. Partington has

made a strong case that Wells was deeply shaken by the hostile reception to the

frighteningly 'negative eugenics' of *Anticipations*, arguing that he afterwards

revised, and even repudiated, some of the more "gross and ignorant

generalisations," such as his implication of "large sections of the world's

population in the crime of 'polluting' the 'efficient' peoples" (52), with the

publication of the latter two non-fiction works. According to Partington, his

thought simply developed.[122] I would go further and suggest that the Wells of *The*

First Men in the Moon was openly contradicting, even satirizing, or expressing a

radical ambivalence about the eutopian impulses of the Wells of *Anticipations*

(even though both texts were published the same year). Wells himself prefaces

Anticipations by stating that, "hitherto such forecasts have been presented almost

invariably in the form of fiction, and commonly the provocation of the satirical

opportunity has been too much for the writer" (1). In other words, he has finally

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[119] See John Carey's *The Intellectuals and the Masses: Pride and Prejudice Among the Literary Intelligentsia, 1880-1939*. London: Faber and Faber, 1992.
[120] He goes on to state that "whole masses of human population are, as a whole, inferior in their claim upon the future, to other masses . . . that their characteristic weaknesses are contagious and detrimental in the civilizing fabric, and that their range of incapacity tempts and demoralizes the strong" (qtd. Partington 52). Partington refers to the public policy Wells advocates in the final chapter on "Faith, Morals, and Public Policy in the Twentieth Century" as "detestable" and "indeed murderous" (51).
[121] See Partington, *Building Cosmopolis*, pp. 57-58.
[122] See Partington's chapter, "The Death of the Static: H. G. Wells and the Kinetic Utopia," *Building Cosmopolis*, pp. 49-64.

chosen to write non-fiction because it was the only way he could resist the compelling impulse to play with ambivalence in his scientific romances.

Even if this were not the case, however, it is clear that, while Wells was enamoured of eugenics during the period in which he wrote *Moon*, he was not enamoured of Galton's 'positive' approach to eugenics. In *Anticipations*, and even more so in *Mankind in the Making* and *A Modern Utopia*, Wells expresses deep skepticism about the science behind Galtonian eugenics—the kind most closely associated with the 'positive' Selenite scheme inside the moon (although by no means a perfect fit, as the Selenites often use 'surgery' rather than heredity to mould their citizens as workers). As Partington notes, Wells did not want to be associated with Galton, and when "criticisms *Anticipations* received went uncomfortably close to aligning Wells with Galton," Wells "took great care in subsequent years to show his unequivocal rejection of Galton's views" (54). Wells did not believe that a perfect society could be produced through the eugenic breeding of 'superior' stock because it was too difficult to determine what traits to select as 'superior'. Wells had a more complex understanding of heredity than Galton, holding that "inheritance was passed down from a large pool of characteristics held by many generations of the child's forbears" (55). He also reserved a place for nurture, arguing "that external factors also played a great part in the development of human characteristics—factors which Galton completely ignored or dismissed in his theory" (55). Wells also provided a devastating critique of Galton's focus on intelligence as a desirable trait for inheritance by pointing out that criminals are often some of the most intelligent specimens of the

race, the "the brightest and boldest members of families living under impossible conditions" (qtd. Partington 55).

Furthermore, by 1905, Wells was passionately advocating for the establishment of an alternative utopian society that directly contradicted the Galtonian eutopia he had designed for his Selenites in *The First Men in the Moon*. As Parrinder has argued, "the novel ends with the stable empire of the Selenites, in which decay or revolution seems impossible . . . The satirical ambivalence of *The First Men in the Moon* is evident from the fact that . . . the Selenites approximate to the world government of which Wells himself dreamed—yet they are also deeply and intentionally repugnant" (*Shadows* 77). Indeed, in *A Modern Utopia*, Wells came to the conclusion that traditional utopias, such as Plato's and More's, but also Galton's and the 'perfected' world of his own Selenites, were hampered by their fixity and so "were no longer plausible as bases for modern life" (Partington 49). These "non-Darwinian utopias" were "all perfect and static States" where "a balance of happiness won forever against the forces of unrest and disorder that inhere in things" (qtd. Partington 49). In Wells's new "Kinetic Utopia," there would be room for "friction, conflicts, and waste" although "the waste will be enormously less than in our world" (50). Thus, it cannot be doubted that part of Wells, even as early as 1901, would have distrusted the ant colony world created by his savvy Selenites. Indeed, he seems to have created the utopia in the first place in order to satirize the eugenic and posthuman Galtonism found in many late Victorian 'static' utopias, the best example of which is Green's *A Thousand Years Hence*.

Before I show how the Selenites parody the eugenic posthuman, I want to examine how Wells creates and then undercuts Cavor as the potentially post-human subject. The ingenious scientist is, on the surface, the moral hero of *Moon*, the perfectly reasonable foil for the more typically amoral and irrational Wellsian anti-hero in Bedford. Cavor is the personification of scientific rationalism. He is constantly abstracted and calculating to the point of detachment. He gives the impression of a man caught inside his own mind. In fact, Cavor is all mind. In Bedford's early encounters with the scientist—as Cavor crosses his field of vision at regular intervals every day during his walks at Lympne—he comes across as potentially post-human. Bedford, for example, describes Cavor as buzzing "like something electric" (6). Cavor resembles an object; indeed, "one would think he was learning to be a marionette" (7). He speaks in "technicalities" (11). Throughout these early scenes, Wells emphasizes the repetition of Cavor's habits, as if he is an automaton. When Bedford asks Cavor to modify his walking routine, for instance, Cavor's thinking patterns are completely disrupted; it is as if Bedford has put a bug in Cavor's computer-programmed brain.

Yet Wells undercuts Cavor's potential post-humanity rather quickly when Cavor blows the roof off his own house at Lympne after performing an experiment on Cavorite (Wells's inventive answer to Bulwer-Lytton's Vril and Green's 'cross-electric'). The abstracted scientist is rather urgently reminded of the finitude of his own flesh, of his own embodiment, after he is thrown from his house and caught up in a wild garden, where Bedford finds him almost

indistinguishable from the Darwinian entanglement that surrounds him. Bedford barely perceives "something stir" amongst "the heap of smashed branches and fencing that had banked itself against a portion of the garden wall" (21). The budding 'playwright' notes that "before I reached it a brown object separated itself, rose on two muddy legs and protruded two bleeding hands. Some tattered ends of garment fluttered out from its middle portion and streamed before the wind" (21). Cavor is an almost unrecognizable "earthy lump" until Bedford is finally able to make out "that it was Cavor caked in the mud in which he had rolled" (21). The brainy scientist has been reduced to a dismembered "brown object." No longer a transcendent mind, he has become an assemblage of fleshy, rather than machine, parts. He has become part of the natural world he usually studies from on high. He even shows signs of passion as he extends a "muddy lump of hand" to Bedford, and staggers towards him. Now his face "is worked with emotion; little lumps of mud kept falling from it. He looked as damaged and pitiful as any living creature I have ever seen" (21).

Wells brings the self-absorbed and abstracted Cavor back to earth with a thump. Cavor soon recovers, however, and is back on his higher plane. Wells never does endorse the hyper-rationalism of Cavor and even has some fun satirizing the scientist whom he presents as just as cold-blooded as the brutish Bedford is hot-headed. After Cavor nearly asphyxiates the planet with the experiment on Cavorite—it could "have whipped the air off the world as one peels a banana" (24)—he shows little remorse for endangering not only the planet but his three lowly assistants. He explains to Bedford that "my three assistants

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may or may not have perished. That is a detail. If they have it is no great loss; they were more zealous than able" (25). On the moon, too, he is dismissively elitist towards the Selenites of the outer rim. They are as 'unevolved' as Britain's lower classes and so seemingly not worthy of his consideration. They are, he tells Bedford, "no more than ignorant peasants, dwellers in the outskirts, yokels and labourers half akin to brutes" (141). Throughout the novel, Cavor pretends to be above earthly matters (until he is jolted by explosions or death); he "cannot consent for one moment to add the burthen of practical considerations to my theorising" (24). He is soon a robot again, and so "on the way he fell humming" (27).

In Wells's opposing characterizations of Cavor and Bedford, he satirizes intellect and instinct in their most extreme forms. In contrast to the hyper-rational Cavor, Bedford—despite his self-conceits (he thinks he is a good businessman and playwright)—is impulsive and emotional. He reacts to the unknown with violence. After being captured, for example, Cavor wants to reason with the Selenites. He believes that by signaling their intelligence to the Selenites—by exhibiting rational behaviour—Cavor and Bedford might be able to communicate with these lunar Others. Ideally, communication, according to Cavor, would demystify the creatures and so diminish some of the fear and suspicion between the two species. They might even discover commonalities where now they only see difference. Cavor demonstrates his faith in the utopian ideal of the "electrical sublime" when he suggests to Bedford that they might converse through a Galton-inspired universal code; it was Galton, after all, who had proposed that "where

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there are minds, they will have something similar—even though they have been evolved on different planets. Of course, if it was a question of instinct—if we or they were no more than animals . . ." (97).

But human beings are 'higher' than animals, and Cavor sees himself, and other humans like himself, as not only intelligent but potentially post-human. Fittingly, one of Galton's papers comes to his mind as a way out of the problem of colonial encounter:

> The resemblance must bridge it. I remember reading once a paper[123] by the late Professor Galton on the possibility of communication between planets. Unhappily at that time it did not seem probable that it would be of any material benefit to me, and I fear I did not give it the attention I should have done . . . His idea was to begin with those broad truths that must underlie all conceivable mental existences and establish a basis on those. The great principles of geometry, to begin with. . . . By demonstrating our knowledge of these things we should demonstrate our possession of a reasonable intelligence. (97)

For Cavor, as for Galton, universally encoded and mathematical language offers a means of erasing difference and of cleansing the universe of devolutionary disconnections and disturbances. After temporarily sharing Cavor's "wild hope of communication, of interpretation with these weird beings," Bedford quickly retreats to his attitude to the Other, which initially comes across as a fairly non-threatening respect for the deep diversity of life forms in the Darwinian universe: "The things are outside us . . . They're more different from us than the strangest animals on earth. They are a different clay" (97). Indeed, Bedford astutely refers to Cavor's hope for connection as an "incurable anthropomorphism" (101); even

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[123] He is referring here to Galton's 1896 *The Fortnightly Review* article entitled, "Intelligible Signals Between Neighbouring Stars."

Bedford cannot help but translate the Other in terms of the Self, irrationally imagining "there were human heads inside their masks" (101).

Yet Wells does not endorse Bedford's reactionary emotionalism either. Bedford cannot help but lash out impulsively at what he does not understand. He anticipates threats in every incomprehensible Selenite gesture. Thus, in a pivotal scene in the novel, when he and Cavor are asked to cross a lunar bridge that would most certainly have led to their deaths, Bedford reacts violently where a concerted attempt at communication with the Selenites (Cavor's preference) would have been wiser. Instead, Bedford thoughtlessly jumps to the conclusion, while stubbornly ignoring Cavor's protests, that "an explanation will be impossible. Just here it was that our resemblances were not going to bridge our differences" (113). Soon, he is "mad with fear and anger" (113). He defensively strikes out at a Selenite who smashes "like some softish sort of sweet with liquid in it" (114). The violence empowers Bedford, and his newfound muscle, like that of the Time Traveler amongst the Eloi in *The Time Machine*, soon overwhelms him: "it was like hitting a damp toad stool. The flimsy body went spinning a dozen yards and fell with a flabby impact. I was astonished. I was incredulous that any living thing could be so flimsy" (114).

He is soon drunk on his own adrenaline. The killing of the Selenite leads to a chase scene that ends in brutal bloodshed as Cavor and Bedford wind their way out of the moon. They are caught in a world of death and flesh as they hide behind butchered mooncalf carcasses. Bedford "trod on things that crushed and piped and went slippery" (135). At one point, he breathlessly reports, "For a

minute perhaps it was a massacre . . . they made no fight against me. I saw scarlet, as the saying is" (135). He glances "for a moment at the smashed and writhing bodies that were scattered over the cavern floor, with a vague idea of further violence, then hurried on after Cavor" (135). Bedford has become the typical colonial strong man; he is an H. Rider Haggard hero with more brawn than brains who instinctively destroys what he cannot understand.

Yet Wells does not allow Bedford to be completely reduced to his physicality. He raises Bedford above the level of a colonial cliché when he grants him a mystical, nearly post-human, experience after his escape from the moon— when he is on his way back to earth, alone, in the sphere (by this time he thinks Cavor is dead somewhere on or in the moon). In the chapter, "Mr. Bedford in Infinite Space," Bedford has delusions not only of grandeur but of disembodiment. Parrinder describes Bedford's experience as "a sort of Gnostic intimation of universal consciousness" (*Shadows* 150). He starts questioning his own identity as a human being. In the midst of the black infinite, Bedford drifts through an existential crisis of the liberal subject. He hangs as if "annihilated" (156): "Whose purpose, what purposes, was I serving? . . . Why had I come to the earth? Why had I a private life at all" (146)? He has a new sense of "earth's littleness and the infinite littleness of my life upon it" (160) even as his mind grows "greater and greater" (160). There is an almost Buddhist detachment, or "severance" (160), from the self, from his liberal human subjectivity: "I became, if I may so express it, dissociate from Bedford; looked down on Bedford as a trivial, incidental thing with which I chanced to be connected" (160). He "had that

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extraordinary persuasion that, as a matter of fact, I was no more Bedford than I

was anyone else, but only a mind floating in the still serenity of space" (160). His

mind was not only completely detached from his body, but now he, not Cavor,

was all mind. His body, his senses, have completely dissolved in infinite space.

He has become post-humanly abstract and all-knowing—a being close to God. He

hangs "thinking of such immaterial things as these . . . dissociated and apathetic, *a*

cloudy megalomaniac, as it were, amidst the stars and planets in the void of

space" (162; my italics).

      In order to break out of his delusion, Bedford knows he must try to

reinstantiate himself within his own body and regain his senses. He tries to be less

rational and more sentimental as he summons memories "of vivid moments, of

tender or intense emotions . . . I felt that if I could recall one genuine twinge of

feeling the growing severance would be stopped" (160). The detachment, after all,

had come after losing "all weight and sense of resistance" in space (161). He

needed to re-attach to the material world, to existence, to the real, and, in

characteristic form, Bedford attempts to re-connect with his own materiality

through violence. Now he "endeavoured to recover that sense by banging myself

about the sphere, by pinching my hands and clasping them together" (161). He

seeks to rediscover his own physical limits—the literal boundaries of himself as a

subject—as he pinches his own skin; the skin here represents the outer-reaches of

human instantiation, the limits of the corporeal vessel in which human

subjectivity is contained. Bedford clasps his hands together for similar reasons, to

unite the furthest reaches of the self and to re-encapsulate the wholeness or essence of his own being (his soul?) with a prayer-like gesture.

Yet for the time he drifts weightless in endless space, unable to touch solid ground, he feels himself to be "something quite outside not only the world, but all worlds, and out of space and time, and that this poor Bedford was just a peephole through which I looked at life" (161). Ironically, Bedford has become a scientist, able to dispassionately and egomaniacally observe himself—as if through a microscopic "peephole"—from a purely objective point of view. Like Cavor, and because of Cavor, Bedford floats above nature; unlike Cavor, he recognizes that he hangs on nature's mercy.

The Selenites also exhibit this tension between embodiment and disembodiment, technological abstraction and the grotesque. When Bedford and Cavor first encounter them, they appear to be post-human. Like Galton's ant-Martians and Green's Upper Solars, they are at first presented as having vaguely technological appendages, enhancements, and masks. They seem like cyborgs. The Selenites are described, for example, as having "helmet faces" (162). Unlike the mooncalf herds, which are described as monstrously embodied—Wells compares them to "stupendous slugs" (180)—the Selenites are ant-like, cold, and mechanistic. One of the first Selenites they meet does not even appear to be made of flesh and blood. He is presented "as a compact bristling creature, having much of the quality of a complicated insect, with whip-like tentacles, and a clanging arm projecting from his shining cylindrical body case" (79). These upper

Selenites appear to have all the apparatus of the plugged-in subject; with one, "a pair of goggles of darkened glass set very much at the side gave a bug-like quality to the metallic apparatus that covered his face" (79).

Ironically, however, Wells soon reveals that these cyborg Selenites are actually of the 'lower orders' in the moon. He upsets our expectations when he imbues these AI-like lunar subjects not with the intelligence he granted his technologically-enhanced Martians in *The War of the Worlds* (1898) but with the least intelligence of any creatures in the moon. Wells soon reveals that the superior Selenites, also produced through elaborate eugenic selection, are parodies of the eugenic posthuman as well as satirical portraits of nineteenth-century craniology's obsession with brain size. In the buzzing-with-intelligence inner sanctum of the moon, Wells sets us, and Cavor, up to find beings resembling the Upper Solars, but what we find instead are grotesque and fleshy "wabbling jellies of knowledge" (199).

In Cavor's "Natural History of the Selenites" (188), he describes his first encounters with the variegated Selenite population—as opposed to the homogeneous ants of Galton's "Martian Fantasy," his post-humans of *Kantsaywhere*, or Green's Upper Solars—as gothically Darwinian and embodied: "Some bulged and overhung, some ran about the feet of their fellows, some twined and interlaced like snakes. All of them had the grotesque and disquieting suggestion of an insect that has somehow contrived to mock humanity" (191). The heads, for example, of the mooncalf minders "underwent astounding transformations; here it was broad and low, here high and narrow, here its

vacuous brow was drawn out into horns and strange features, here it was whiskered and divided, and there with a grotesquely human profile" (192). Galtonian eugenics on the moon has, ironically, created a Darwinian wonderland of multiplicity and complex creations.

Wells's satirical take on eugenics involves a combination of selective breeding through rational reproduction and further selection and surgical intervention after birth. The addition of surgical intervention, a favourite topic of Wells,[124] helps him satirize the specialized caste systems advocated in the static utopias of Galton, Plato, and More by having the 'ideal' social structure literally written onto the body. In his lunar utopia, Wells materializes and so externalizes the differential intellectual essences, or the private mental processes that Galton and Weismann conceive of as immaterial and transmittable code. In the Selenite world, an individual's perceived aptitude sculpts his flesh. Thus, the ruling intellectual elite have giant, oozing brains; here Galtonian eugenics is made shockingly and hilariously literal.

The lower orders, however, including the diverse crowds described above, were often molded into the shape of their 'natural' ability through processes involving pain and torture. In one extreme case, Cavor comes across a "number of young Selenites, confined in jars from which only the forelimbs protruded, who were being compressed to become machine-minders of a special sort. The extended 'hand' in this highly developed system of technical education is stimulated by irritants and nourished by injection while the rest of the body is

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[124] See Wells's *The Island of Doctor Moreau*.

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starved" (200). Wells saw deformation where Galton and Plato saw a perfecting

process. Cavor is understandably shaken by the scene although he chastises

himself for being so unreasonable as "it is really in the end a more humane

proceeding than our earthly method of leaving children to grow into human

beings and then making machines of them" (201). On Wells's moon, the body

comes back to haunt as if to show the futility and even inhumanity of denying the

body, "making machines of them," on earth. The material distortions on the moon

come to mirror the mental and spiritual distortions emanating from an

increasingly posthuman planet.

The main target, however, of his parody of eugenic ideology comes in his

darkly comic descriptions of the ruling Selenites as, literally, hardly more than

gray matter. Cavor explains that the ruling Selenites are born without skulls and

so sport "brain-cases distended like bladders" (192). Cavor's guard, Phi-oo, for

example, has a head "distended into a huge globe" with the skin "thinning out to a

mere membrane, through which the pulsating brain movements are distinctly

visible. He is a creature, indeed, with a tremendously hypertrophied brain, and

with the rest of his organism both relatively and absolutely dwarfed" (193). His

other guard, Tsi-puff, on the other hand, has brain hypertrophy in different

regions and "his head was not round but pear-shaped, with the stalk downward"

(194). These "wabbling jellies of knowledge" (199) form "a sort of aristocracy in

this strange society" (198); they are supremely exaggerated versions of the hyper-

intellectuals dreamed up in so many late Victorian utopias, including those of

Green and Galton.

The Selenite brains are like fleshy computers and "animated encyclopedia[s]" (205). Their visible "pulsating brain movements" resemble the flickering of computer terminals and screens. But these oozing neurological jellies—almost sexual in their nerve-ending sensitivity and potency—are actually so powerful that they have made computers, and all other human and posthuman devices, archives, and databanks, pointless. Indeed, Cavor explains that "the unlimited growth of the lunar brain has rendered unnecessary the invention of all those mechanical aids to brain work which have distinguished the career of man" (198). Thus, in the moon, there are "no books, no records of any sort, nor libraries, nor inscriptions . . . All knowledge is stored in distended brains much as the honey-ants of Texas store honey in their distended abdomens. . . the lunar Somerset House and the lunar British Museum Library are collections of living brains" (198).

Knowledge in Wells's moon is almost conceived of as an appetite. The Selenites' balloon brains inflate, like stomachs (or bladders or penises), as they gorge on facts and theories. These supreme Selenites come across as deformed Galtonian gluttons, bloated with information rather than food, and as such hold a disturbing mirror up to the Galtonian Cavor. What if Cavor's obsession with intellectual pursuits, at the expense of all else (including compassion), were written onto his body? What if his body were outwardly sculpted to fit the inward workings of his mind? His body would reflect the distortions of his being. He would no doubt resemble these out-of-proportion Selenites. He, like "some of the profounder scholars" of the moon who are "altogether too great for locomotion,"

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would have to be "carried from place to place in a kind of Sedan tub" like the

"wabbling jellies of knowledge" that enlisted his "respectful astonishment" (199).

Cavor would be, like one of the Selenites he encounters, one "vast, shaven, shaky

head, bald and thin-skinned, carried on [a] grotesque stretcher" (199). As Cavor

points out, the human mentality is "all hidden in the brain . . . but the difference

was there" (214). He admits that "perhaps if one could see the minds and souls of

men they would be as various and unequal as the Selenites" (214).

At the head of the intellectually potent Selenite elite is "that marvellous

gigantic ganglion the Grand Lunar" (198), who sports the most engorged brain of

all. The Grand Lunar's "quintessential" brain, in its "purple-glowing brain-case,"

is so big and overheated that Cavor notices "shadowing attendants . . . busy

spraying that great brain with a cooling spray, and patting and sustaining it"

(209). The Grand Lunar has "no face, but eyes" and a "little dwarfed body" (208).

Indeed, the Grand Lunar is almost so deeply embodied that he has become

divinely disembodied:

> He was seated in a blaze of incandescent blue. A hazy atmosphere filled
> the place so that its walls seemed invisibly remote. This gave him an effect
> of floating in a blue-black void. He seemed at first a small, self-luminous
> cloud, brooding on his glaucous throne; his brain case must have measured
> many yards in diameter . . . a number of blue searchlights coming from
> behind the throne gave a star-like radiance to the halo immediately
> surrounding him. (207)

The Grand Lunar becomes an almost spiritual presence/essence through his very

materiality; it is a strikingly ambivalent description, the kind of which Wells was

a master. Cavor faces a Selenite with a massive jelly brain measuring many yards

in diameter and yet the king of the Selenites is theatrically surrounded by

searchlights and incandescence, radiance and cloud-like luminosity. His brain is almost like a star reaching into the void, and yet at the same time viscerally grotesque.

Near the end of the novel, Cavor finally gets the "horrors" (206) from being surrounded by so much gluttonous brain flesh and unknowably strange eugenic creations. Although he fights his own disgust, as an emotional rather than intellectual response (he is now acting like Bedford!), the scientific genius cannot help but feel alienated. As he is escorted through the Selenite crowds, "adrift on this broad sea of excited entomology" (206), he is suddenly confronted by the limits of his own reason, or at the very least his reason is no longer able to comfort him. He becomes painfully aware of the difference between communication and understanding—of the losses and tranformations that come with translation. He is no longer the scientific observer but the scientifically observed. In the midst of the confusion, he cannot help but feel the threat of death.

Once again, his is the opposite reaction to Bedford's posthuman megalomania while drifting in space. Cavor is finally beginning to feel the finitude of his own flesh and emotions, his own non-transcendence in the face of unknown nature: "I felt amidst those slender beings," he writes, "ridiculously thick and fleshy and solid" (210). But the solidity of his flesh is not a source of power, as it was for Bedford, but a reminder of his embodied vulnerability.

Yet, to the very end, Cavor embraces communication as his only hope for salvation. The last section of the novel, for instance, which is told from Cavor's

perspective, is a series of broken messages that Cavor manages to signal to the earth from a telegraphic apparatus somewhere in the moon using Galton's universal, or "*instrinsically* intelligible," language (Galton, "Intelligible Signals" 657). It is from these fragmented dispatches—which appear as addenda to the main story and disrupt the linear narrative flow, allowing Wells to experiment with time, space, and perspective in a playfully 'posthuman' way—that we learn all of our 'information' about the Selenites and their 'utopian' world.

Thus, Cavor's idealistic belief in the possibility for interplanetary communication (see his earlier exchange with Bedford) is at least partly born out just as it is in Galton's "Martian Fantasy" and Green's *A Thousand Years Hence*. Wells undercuts the "electrical sublime" in *The First Men in the Moon*, however, by constantly interrupting Cavor's narrative, and the novel, with unexpected disconnections and garbled code. Bedford, for example, describes the "fragmentary and tantalizing" communications from Cavor as an "intermittent trickle of messages" (203). He is constantly referring to the fact that "the record is here too broken to transcribe for the space of perhaps twenty words or more" (213). We only ever get an imperfect record from Cavor, which Bedford has 'edited' (and perhaps manipulated?) for clarity. In Wells's parody of the posthuman, communication is never complete or redemptive. In fact, it is communication itself that eventually leads to Cavor's 'death'.

In the climatic scene of the novel, as Cavor stands face to 'face' with the Grand Lunar, communication at first comforts the scientist. He explains in a message that he "found something reassuring by insensible degrees in the

rationality of this business of question and answer. I could shut my eyes, think of my answer, and almost forget that the Grand Lunar has no face" (212). And yet perfect communication is once again presented as impossible, even with the help of his brainy translator Phi-oo (the first lunar professor of Earthly Languages). The Grand Lunar does not understand the concept of democracy, nor does he comprehend the earth's continued use of many tongues rather than one universalized language. But Wells also shows that even when communication is fluid, it is not necessarily an unqualified good, as it can lead to public exposures that leave one or more of the parties vulnerable.

Indeed, the cross-cultural exchange between Cavor and the Grand Lunar eventually leads to disaster when Cavor naively reveals that humanity was "still not united in one brotherhood" (215). In Bedford's interpretation, "he had talked of war, he had talked of all the strength and irrational violence of men, of their insatiable aggressions, their tireless futility of conflict" (219)—for whom Bedford himself must have been Exhibit A for the Selenites. In stark contrast to the idealistic view of communication in Galton's "Martian Fantasy" and A *Thousand Years Hence*, Wells's view of posthuman interplanetary communication (once again held up as a mirror for human communication) is more ambivalent and asks a deeper moral question: is not the triumph of the "electrical sublime" dependent upon the good will of species (and people) everywhere?

Cavor is not so lucky as Green in *A Thousand Years Hence* or the humans in Galton's "Martian Fantasy."[125] The Selenites, perhaps understandably, seem to have taken a harsh line with him in order to protect their eutopia from an irrational and potentially threatening earth. In Bedford's not entirely trustworthy account, "the line the cold, inhuman reason of the moon would take seems plain enough" (219). In their wisdom, they prefer to remain isolated and free from colonial contact. Thus, Cavor's idealistic and Galtonian faith in the civilizing influence of universal interplanetary communication eventually leads to his own disconnection, which in the novel means death and the end of the narrative. He has communicated too well. He has said too much. The Selenites decide that less communication, not more, will keep them safe and protect their world. They want to ensure their autonomy; hence, their technological oasis inside the moon must remain a secret, at least from the savage earth.

And so the Selenites decide to cut off Cavor's communication with the earth. The last messages from Cavor are incomprehensible and have the effect of "someone scribbling through a line of writing" (217). This time the scrambling seems deliberate; Bedford blames the Selenites: "the undulations are evidently the result of radiations proceeding from a lunar source," he notes, "and their persistent approximation to the alternating signals of Cavor is obviously suggestive of some operator deliberately seeking to mix them in with his message and render it illegible" (217). Finally a "curtain of confusion" drops between

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[125] Note that the humans in *The War of the Worlds* were not so lucky either, until the end of the novel.

Bedford and Cavor (219) that is even more extreme than the personality differences between them throughout the novel. Fittingly, the last word received from Cavor, "uless," is unintelligible, although Bedford guesses that it might be a mis-spelling of "useless."

At the end of the novel, Cavor is indeed forced to confront the limitations of communication and that it sometimes can be "useless." Its potential for salvation is also called into question when the missing Cavor turns up in Bedford's dream, "being forced backward step by step *out of all speech or sign* of his fellows, for evermore into the unknown—into the dark, *into that silence that has no end*" (220; my italics). Unlike Green, Cavor is forced to retreat into incomprehensibility, which is figured here, at least for the Selenites, as a protection from the potential violence of Galton's posthuman language. In *The First Men in the Moon*, the more 'civilized' world on the moon is counterintuitively and parodically presented as embracing embodiment over disembodiment, disconnection over connectivity, mystery over knowing, and so death over life.

"Good night, Mr. Galton."

"Good night, Mr. Wells."

The two men are once again standing face to face, but this time in a darkened corridor of the University of London. The electric light overhead is flickering, making their faces seem almost alien, even ghoulish. Pearson waits in a black corner next to the shadowy stranger.

There is a chill in their handshake, as though electricity is flowing through their bodies.

"You cannot possibly believe that the criminal classes are so very bright and bold, Mr. Wells," says Galton, shivering in his wool vest and overcoat. "Well, such an idea is . . . criminal."

Victorian gentlemen stop to pat Galton on the shoulder and congratulate him on his lecture. A leaflet flutters up around them as the door opens and closes. It reads, "Eugenics: Its Definition, Scope, and Aims."

"And that perfectly healthy couples can give birth to disease . . ." Galton continues, ignoring the congratulatory taps from the stream of dark-suited strangers.

"It's the latest science," says Wells matter-of-factly.

"You were clearly Huxley's student," Galton huffs.

"I was indeed," replies Wells a little haughtily.

Just then Pearson intervenes, leading Galton away by the arm. "Well, good luck on your utopia, Mr. Wells," says Pearson politely. "What did you say it was about again? A dynamic . . ."

"I am also planning on writing a utopia," grunts the older man over his shoulder.

Wells raises an eyebrow.

"I am going to call it *Kantsaywhere*, and it will be modeled on the great utopias of Plato and More."

"Yes, indeed," says Wells. "Very scientific?"

"Very eugenical, Mr. Wells," he replies. "Without any of your 'inventing.'"

FROM MARS TO *KANTSAYWHERE*:
SIGNALING THE POSTHUMAN IN GALTON'S FRAGMENTED UTOPIAS

The glorious frosty sunshine of this morning picks me up. I have been "throaty" and obliged to rest a good deal. Karl Pearson comes this afternoon for one night. I am saving my voice for him. "Kantsaywhere" must be smothered or be suspended. It has been an amusement and it has cleared my thoughts to write it. So now let it go to "Wont-say-where."
Galton, in a letter to his niece Mrs. Lethbridge, Dec. 28, 1910

It is 1896. Galton is lying in bed in his rooms in Wildbad, Germany,

gazing at the stars. The mountains stand darkly against the glinting. The bed is

piled high with open books. Percival Lowell's *Mars* is splayed at his feet. Camille

Flammarion's *La Planète Mars* is closed on a thumb. Giovanni Schiaparelli's *La

Vita Sui Pianeta Marte* lies across his right palm.

He sighs as he thinks.

"Can you see Mars from over there, Louisa?"

"I am afraid not Frank." She rises to fluff her husband's pillow. "Are you

feeling better, dear? Did the bath do you good today?"

"Can you see that glimmer?" inquires her distracted husband.

Louisa shakes her head.

"It's a scintillation, do you not see? And it is most regular, most regular

indeed."

Louisa shakes her head, picks *The War of the Worlds* up from the bed, and

glances through it.

"Oh, that is just nonsense," he says, snatching the book from his wife's

hand.

A young girl runs into the room, a saucer in one hand.

"Did you see it, Master Galton, did you see it?"

"The scintillation?"

"Why yes, sir, the blinking star!"

"You clever little astronomer," says Galton, patting the girl on the head.

"And I know something else too."

"What is it, pretty one?"

"I know what the Martians look like. They're giant ants, and they only count up to eight."

"And how do you know that, my dear?"

"Because they only have six limbs and two antennae where we have ten digits and count up to ten."

She holds up two little hands, her fingers spread widely apart.

"A brilliant fantasy," says Galton, with a smile. "We have little more than monkey hands compared with the intellectual Mars Folk, my dear. I shall note as much in my article."

With that, before an astonished Louisa, the little girl turns on her foot and stamps out, spraying her saucer of ants over the moon-illuminated floor.

The only communications from Galton's science fiction—his imaginative utopian worlds—that survive are disconnected and fragmented. Their fractured shape is an accident of history but suggestive, too, of the difficulties of knowing, understanding, and communicating across space and time—suggestive, also, of the difficulties Cavor faced in Wells's moon. These fictions still tell us much, just

by their existence, about Galton, posthumanism, and our eugenic past. Galton's eugenic ideology—starting with his imagining of a 'Utopia or Laputa' in his first publication on eugenics in 1865[126]—was as influenced by utopia and eventually late Victorian science fiction as utopia and late Victorian science fiction were influenced by his eugenic ideology.[127] Galton almost certainly borrowed his eugenic ideals from these 'perfect societies,' especially the utopias of More and Plato, and from Swift's utopian satire, *Gulliver Travels*.[128] By the end of Galton's life, according to Pearson, he wanted to use his new brand of statistical eugenics to enrich and transform the already eugenic genre of fiction:

> Thinking over the problem of books that have had lasting influence on mankind his thoughts turned to those ideal polities, Plato's *Republic*, More's *Utopia*, Harrington's *Oceana*, and Butler's *Erewhon*. Why should he not exercise a similar influence on generations to come by writing his own *Utopia*, a story of a land where the nation was eugenically organized. A modern Gulliver should start his travels again and seek a bride in Eugenia. (Pearson Vol. 3a 411)

He wanted to propagandize his work and ensure its immortality, but through fiction rather than the imaginative power of science. As we saw in the last chapter, the utopian genre had already absorbed his posthuman quest for eugenic purification and disembodiment. The science in these novels, however, was unabashedly fanciful, so there was room for Galton, the ultimate authority on eugenics, to step in and perfect the science within the fiction, to make these *fin-de-siècle* estrangements more cognitive.

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[126] See Galton, "Hereditary Talent and Character."

[127] For more on the influence of eugenic ideology on Victorian science fiction, see Claeys' *Late Victorian Utopias* as per my discussion at the beginning of Chapter Three. See also Suvin, *Victorian Science Fiction in the UK*.

[128] Both Wells and Galton borrowed scenes from this fantasy; Galton used Laputa; Wells used Brobdingnag for the scene between Cavor and the Grand Lunar.

Solid science, however, does not a bestselling or artistic novel make, and

Galton's manuscript of *Kantsaywhere* was immediately rejected by his chosen

publisher, Algernon Methuen, over tea at Haslemere on December 4, 1910.[129] Of

Galton's two unpublished utopias, *Kantsaywhere* has received by far the most

attention. Indeed, *Kantsaywhere*—a rejected novel gutted of its 'love episodes'—

has received considerable critical attention in recent years.[130] These nearly

incoherent fragments, saved in Galton's archives and pieced together by

Pearson,[131] have been mostly puzzled over for their relationship to other eugenic

utopias and biological fictions of the era. The utopia has not yet been examined as

an expression of Victorian proto-posthumanism or for its relationship to

contemporary cybernetics. Chapter Four redresses this neglect by examining

Kantsaywhere as an incomplete *fin-de-siècle* novella deeply engaged with the

posthuman, and, as such, akin to those science fictions studied in the last chapter.

In fiction, Galton could uninhibitedly perfect his vision—in contrast to Wells who

needed non-fiction to ground his fantasies—and describe more openly the new

eugenic Eden he only hinted at in his scientific theories. In *Kantsaywhere*, he

could fully dissolve his subjects into data, externalize the mind, and offer his

strange take on photography, spiritism, ancestor worship, and immortality. Yet

Kantsaywere remains a humble and human utopia, deliberately set in the earthly

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[129] See Gillham, *A Life of Sir Francis Galton*, 344.
[130] See Gregory Claeys' "Utopian Texts: Introduction Francis Galton, 'Kantsaywhere' and 'The
Donoghues of Dunno Weir'." Ed. Lyman Tower Sargent. *Utopian Studies* 12.2 (2001): 191-233;
Patrick Parrinder's "Eugenics and Utopia: Sexual Selection from Galton to Morris." *Utopian
Studies* 8.2 (1997): 1-12; Angelique Richardson's *Love and Eugenics in the Late Nineteenth
Century: Rational Reproduction and the New Woman*. Oxford: Oxford UP, 2003; Peter Morton's
The Vital Science: Biology and the Literary Imagination, 1860-1900. London: George Allen &
Unwin, 1984.
[131] See Vol. 3a, 413.

present—unlike the otherworldly fantasies explored so far—which perhaps makes its content more believable and so more dangerous.

Let us start, however, with a decoding of Galton's other science fictional manuscript, written five years earlier, which, although it has received far less attention than *Kantsaywhere*, is no less interesting. Galton's "Martian Fantasy," which also survives in fragments, is a utopian thought experiment, more otherworldly and exotic than *Kantsaywhere*. The manuscript survives in the archives at the University College London as notes which were eventually cut from his 1896 article for *The Fortnightly Review* entitled "Intelligible Signals Between Neighbouring Stars." Forrest argues that Galton's "Martian Fantasy" carries *Kantsaywhere*'s DNA, the latter being a more developed science fictional extrapolation of eugenics theory. "It is a pity," he writes, "that Galton never worked up these rough notes to write a more detailed account of the Martian fantasy. The exercise served as a preliminary to a later long Utopian novel which was refused publication but which survived in fragmentary form" (240). I argue that Galton's "Martian Fantasy" provides a bold example of the posthuman currents in Galton's thought. It reads like an early and direct posthuman premonition of the ant-like "wabbly jellies" of Wells's *The First Men in the Moon*.

Galton's "Martian Fantasy" may have begun as a way for the eugenicist to work out ideas for "Intelligible Signals Between Neighbouring Stars," but it now stands in fascinating correlation with the published scientific article. Whereas the

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Fortnightly piece develops an epistolary story about the earth's response to hypothetical signals from Mars—including the mathematical workings for an "*intrinsically* intelligible language" ("Intelligible" 657)—Galton's "Martian Fantasy" tells the same story, complete with the similar workings for a "celestial syntax" (Forrest 239), from the Martian perspective. In the "Martian Fantasy," Galton gives voice to fantastical Martians as they receive messages from Earth. Galton can now imagine, in a way he later could not in the more homegrown *Kantsaywhere*, what a truly eugenically-produced posthuman society might look like after having evolved at a faster speed than humanity, on another planet, and with another species as the antecedent. On Mars, he would not be confined to the limits of *homo sapiens* biology.

Galton's vision for the Martians—in another uncanny accident of cultural history—is remarkably similar to the lunar world that would be imagined, albeit satirically, by Wells five years later in *The First Men in the Moon*. While it is highly unlikely that Wells ever read Galton's rough manuscript for "Intelligible Signals," with its extensive descriptions of eugenically-generated ant-Martians, it is clear from *Moon*, as in the last chapter, that Wells read the article after it was published in *The Fortnightly Review*. He may have even been inspired to create his own "ant-like beings" (*Moon* 178) by this tantalizing line from "Intelligible Signals": "A clever little girl who has helped us much by her quick guesses, entreats me to add her own peculiar view, which is that the Mars Folk are nothing more than highly-developed ants, who count up to 8 by their 6 limbs and 2 antennae, as our forefathers counted up to 10 on their fingers. But enough of this"

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(661). Galton does not elaborate for his *Fortnightly* audience, although he was more intellectually inspired by the idea than he reveals in the respected British journal. It is possible, then, that Wells was satirizing Galton's posthumanism even more directly than we have yet considered, especially in light of the fact that the science fiction writer seems to have formulated much of the plot for *Moon* from his reading of "Intelligible Signals."[132]

Either way, the connection, even if inspirational to Wells, does not completely explain how and why the ant appealed to both Galton and Wells as the perfect evolutionary antecedent for the posthuman. You might even ask how Martian super-ants could be posthuman at all given that they are not and never were human in the first place? There are, I think, three reasons. First, Galton has his über-ants, like Wells's Selenites inside the moon, acting suspiciously human. As Forrest states, "although his description of the Martians and their life is obviously based on the appearance and behaviour of ants, it is hardly necessary to read between the lines to perceive the personal relevance of much of his fantasy. His description of the Martians might also be a self-description" (239). The ants, for example, run newspapers, observatories, colleges, and councils. They evoke the human, even if it is a certain kind of science-fictional super-species of technologically-enhanced robotic human. They are almost parahumans, or ant-

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[132] Wells was also explicitly influenced by the astronomical observations of Nicolas Tesla. Bedford, for example, is informed "that Mr. Julius Wendigee, a Dutch electrician, who has been experimenting with certain apparatus used by Mr. Tesla in America, in the hope of discovering some method of communication with Mars, was receiving day by day a curiously fragmentary message in English, which was indisputably emanating from Mr. Cavor in the moon" (*Moon* 177). He also notes that "the reader will no doubt recall the little excitement that began the century, arising out of an announcement by Mr. Nikola Tesla, the American electrical celebrity, that he had received a message from Mars" (178).

human hybrids. Yet they are quite consciously not human, thus implying that species other than humans are capable of advancing *beyond* the human—which suggests Galton is envisioning, in his "Martian Fantasy," the possibility for a non-anthropocentric future, a world *after* humanism. Second, Galton, like Wells, describes his giant ants, so evocative of robotic humans, as cyborgs, replete with the appropriate insect appendages or prostheses, such as exoskeletons, antennae, and claws. He describes such apparatus in technological terms.

Finally, Galton's and Wells's choice of the common ant as the evolutionary antecedent of posthuman Moon and Mars Folk was likely influenced by the nineteenth-century cultural perception that the insect was highly intelligent as well as *Republic*-like in its efficiency and eugenic social organization. John Lubbock, for example, in his highly influential 1882 study, *Ants, Bees, and Wasps*, states that ants would not only be a superior progenitor to apes but should also be considered second on the scale of intelligence, on earth, to humans:

> The Anthropoid apes no doubt approach nearer to man in bodily structure than do any other animals, but when we consider the habits of ants, their social organisation, their large communities, and elaborate habitations; their roadways, their possession of domestic animals, and even, in some cases, of slaves, it must be admitted that they have a fair claim to rank next to man in the scale of intelligence. (1)[133]

If our tiny Earthling ants, then, building labyrinthine colonies underneath our feet, are already geniuses, imagine what would be possible if these minute creatures were able to control their own evolution in order to create and multiply ever superior ants. Galton's "Martian Fantasy" is an exercise in such logic. He

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[133] Compare Bedford's account of Cavor's observation of the ant-like Selenites: "He does not mention the ant, but throughout his allusions the ant is continually brought before my mind, in its sleepless activity, its intelligence, its social organization" (*Moon* 189).

envisions his ants, as Wells does his Selenites, as almost all brains. But whereas

Wells' embodied creations are playful parodies of late-Victorian posthuman

impulses, Galton's ant-Martians, like Green's Upper Solars, are earnestly

constructed intelligent machines.

The 'narrative' of Galton's fragmented fantasy,[134] like the speculative

account Galton published in *The Fortnightly Review*, is made up of a series of

reports and letters to the editor, except that in the Martian manuscript they are

published in the *Bellona Gazette* rather than an earthly newspaper. The reports

and letters discuss the possibility of sending signals to the Earth during an 'Earth

opposition' (the opposite of the 1892 Mars opposition).[135] The "Optimist" writes

the Martian newspaper to encourage astronomers to experiment with sending

messages to the Earth, a project that might be paid for by a rich benefactor. A

"Pessimist" responds with a letter calling the signaling idea "too absurd

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[134] See Appendix for my complete decipherment of Galton's manuscript.

[135] In 1877, the Milanese astronomer, Giovanni Schiaparelli, observed that Mars was covered in *canali*, which his English audience translated as "canals," setting off an international debate as to whether intelligent, engineering, canal-building life existed on the red planet. Asaph Hall and Edward Walter Maunder sighted other potentially life-supporting qualities in the Martian atmosphere. The 1892 opposition thus sparked an intense scientific debate as to whether visible signals might be exchanged with Mars, ending with the conclusion that such communication was not inconceivable. In 1893, Schiaparelli himself published a widely reprinted article revealing his conversion to the intelligent-alien cause. Indeed, reports of bright light flashes from the Martian surface—often interpreted as intelligent signals—came from observatories in France and California and attracted international attention. The general response beyond that, however, was that, even if signalling were possible, little "could possibly be learnt on either side than that intelligent folk existed on the other planet, who were observant, mechanical, and capable of acting in unison upon large undertakings" (Galton "Intelligible" 657). For more on the 1892 Mars opposition and the science-fictional response, see Paul Fayter's "Strange New Worlds of Space and Time: Late Victorian Science and Science Fiction," Bernard Lightman, ed. *Victorian Science in Context*. Chicago: U of Chicago, 1997. 256-280.

(Appendix 2), although he acknowledges that the idea was received enthusiastically by the Martian population. According to the "Pessimist," the signals would have dubious value even if they were successful: "The result could only be that we had a signal and the earth reciprocated it" (2). They would now know that "the earth was inhabited by observant and intellectual beings" but "this would be the sum total of what we could possibly learn from the Earth Folk" (2-3). The "Pessimist" argues, "with no common language we would consequently be no nearer to natural communication" (3). As a letter from "Common Sense" would later put it, "Mars would have, so to speak, waved something; Earth after some weeks or months would have waved in reply" (3).

Thus, the aim of Galton's "Martian Fantasy," like the *Fortnightly* article, was to solve the hypothetical problem of how to communicate fluently with other worlds once they, or Earth, made first contact. Galton takes it upon himself, four years after the 1892 Mars opposition, to develop a universal language system for interplanetary communication—similar to the telegraph or his own "telotype"— whereby subjects on both planets become informational in order to connect. In Galton's system, vast evolutionary differences are erased in an attempt to translate the world of the Other into the terms of the Self, in order to "learn what we most want to know, such as the forms and features of the inhabitants of the earth, their industry and inventions, their social life and the exact amount of their intelligence" (3). Galton's language of choice, of course, is geometry, which he uses to momentarily dissolve cultural and biological particularities and to move beyond difference. As he did throughout his travels in southern Africa nearly a

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half-century before, and as Cavor does on the moon, Galton uses numbers, calculations, and measurements to control and translate into comfortable 'posthuman' terms that which he cannot understand. As a result, in Galton's manuscript, as in Green's novel, there is never a sense of the "weird"—of the real psychological challenges that come when one is faced with the unknown. Galton, in contrast to Wells, anxiously seeks to avoid such stress and anxiety by immediately and urgently managing difference as a problem to be solved. In his "Martian Fantasy," for example, there is no sense, as there is on Cavor's moon, that these strange Earthlings could pose a security threat once successful communication networks are established. As long as calculations are the ground of being, Galton feels safe.

Before Galton's 'intrinsically intelligible' language can be developed, however, a signal must first be successfully sent and received. "Common Sense" writes the *Bellona Gazette* to argue that such an event would be unlikely given that "the probability that the earth is inhabited by creatures who could and would attempt to reply is infinitesimally small" (3). The earth's plants and animals must, after all, "differ widely from our own" (3). According to "Common Sense," "however various and numerous they may be, it is scarcely likely that any one of them should so far have arrived at the mental stature of Mars Folk, who are lords of all living things in their planet and possibly of the universe" (3). Galton's Mars Folk already perceive themselves to have evolved beyond the human, and as such they view themselves as being scientifically dominant over the natural world and all other species. Galton describes a Martian society populated with cyborgs and

posthumans, with creatures already integrated with machines, beings capable of developing a 'celestial syntax' which they believe will be inaccessible to a backwards, monkey-spawned Earth. Ironically, however, the earthbound Galton is the one developing the language and so catapulting his humans towards the posthuman even as he writes condescendingly about humans from a Martian perspective. The implication seems to be that *he*, if no one else, has attained the almost supernatural "mental stature" of the Martians.

The letter from "Common Sense" goes on to provide an account of the evolutionary history of the Martians in their rise toward the posthuman (or the post-Martian). As we have seen, Galton's Martians, like Wells's Selenites, are descendants of the common ant; they have six limbs and a hard external skeleton that supports their frame. Galton's Martians have evolved, however, to the point where they are now, like Green's Upper Solars, endowed with antennae that operate as an extra sense. They have also grown to four feet in height and have faces far less "prognathous" and "altogether more shapely and precise" than the diminutive ant. "Common Sense" then explains how unlikely it would be that any earthly creature would have followed the same trajectory, thus giving Galton another chance to ridicule his own species as helplessly stunted in the evolutionary race. "It is conceivable," writes "Common Sense," "that the vertebrate class of animals may have large capacities for development and that the ruling Earth Folk may be related to the slow and obstinate ass, to the agile and mischievous monkey" (5).

Even as he mocks the slow progress of his own species of glorified simians, Galton speculates on the possibility that life on other planets, including Mars, may be more evolved, perhaps even approaching the nearly supernatural state of Green's "higher life" forms, simply by virture of having started from a superior evolutionary antecedent. Galton further suggests that, after a certain stage, they might use a eugenics program to develop faster. Yet even as Galton has "Common Sense" write that "it is most improbable that the ruling Earth Folk, if such there be, should have any features, thoughts, or feelings in common with ourselves that would make rational intercommunication possible even if they had all facilities for rapid signaling" (5), we are well aware that Galton, at least, even with his primitive, primate genes, is evolved enough to start working out a smart plan for connection.

In Galton's narrative, there is inevitably a connection. The *Bellona Gazette* soon reports a sighting of a "luminous speck" emanating from the surface of the earth. Thus, Galton's Martians have to concede that the Earth Folk are able to send purposeful flickers to Mars despite their primate origins. This encoded first contact immediately sets Martian astronomers at work on a more powerful telescope through which to decipher the earth's cryptic signals. Once the telescope is built, they immediately confirm that the Earth Folk are sending signals in deliberate, Morse-code-like patterns. Thus, for the rest of the fractured narrative, Galton's own Earth Folk exist as flickering signifiers, represented as patterns in the randomness, and encrypted messages to be deciphered. The Earth exists for the Martians as a disembodied and externalized mind—as reason

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translated and made public in the newspapers. And so Galton presents the Earth Folk, despite his earlier playful ribbing, as already posthuman. They, after all, are the ones who initiate contact. The posthuman Martians are shown to have underestimated their monkey counterparts. Indeed, unlike the Martians, the Earth Folk of the manuscript never become embodied at all but exist exclusively as calculators and calculations. Galton's Earthlings are codes—transmitted across space and time—to be cracked.

A special edition of the *Bellona Gazette* soon announces that the first messages from Earth have been deciphered and that the communal astronomer will provide a complete translation at a special meeting of the Bellona Geographical Society. The meeting takes place in a room crowded with giant ants, where "the antennaes of all present were in constant restless agitation" (8). The illustrations of the signals are projected onto a screen for the audience. According to the astronomers, the pattern of the first messages involves three visible flashes of short, medium, and long duration, lasting 1½, 3, or 5 seconds, respectively. Galton then works out a Morse-code-like 'translation' after setting up an apparatus to record and copy the data pattern as dot, dash, and line. The Martians figure out that the Earth Folk are using the decimal system—based, they surmise, on the five digit hand—rather than their own octesimal system, based on their six limbs and two antennae. Here Galton is considering how to develop an 'intrinsically intelligible' communication system when even algebraic notations are a product of diverse biological evolutions across the universe. Galton makes a convincing case, however, that once a common mathematics is established—

based on flashing patterns through the randomness—a common language can be built. The Martians, for example, are able to translate familiar and perhaps 'universal' formulas—flashed across space—that astronomers have established for calculating each planet's mean distance from the sun into words such as Venus, Earth, Mars, Jupiter, and Saturn. The language is ultimately data-based and data-driven; its purpose is to collect information, as Galton's rather stiff prose attests, rather than to tell a story.

Before Galton finishes his epistolary experiment, he cuts away from the main 'narrative' to provide more information on the biological, social, and cultural conditions of his posthuman Martians. Like so much of Galton's "Martian Fantasy," the aside is anticipatory of Cavor's account of the natural history of the Selenites, edited by Bedford, in *The First Men in the Moon*. The only observer here, however, is Galton. In this section, Galton refines his description of the cyborg Martian bodies. They are now "centaurs" with gadget eyes "of the mosaic type" (11). He describes their super-sensory powers—how the Martian eyesight is "extraordinarily more efficient than our own, both in the acuteness of vision and in the width of the field of view. They see minute and distant objects with the keenest eyes of eagles and their eyetoid is quite as efficient as ours with the aid of an opera glass" (11). Their antennae also provide them with an extraordinary "delicacy of touch . . . which in conversation between social equals and friends are in constant movement" (11). These biotechnological appendages convey as much as "any thought reader or rather any gesture interpreter can make out from them" (11-12). The antennae are so sensitive that during diplomatic conferences

"where whatever is 'said' is conveyed by signs at the council table, and to all, the members are obliged to wear an official costume consisting of a sort of helmet with horns to contain and conceal their antennae" (12).

According to Galton, the Martian-ants are simply more "alive to what is going on around them" (11). Their extra sense, for example, gives them the sensitivity of "deaf-mutes" (11). Galton describes their "public utterances" as reminding him of the gesture languages "of deaf mutes, which may be seen in operation any Sunday in the deaf mute chapel on Oxford Street" (12). This surprising, yet repeated comparison between the Martian posthumans and 'deaf-mutes' suggests a certain fascination with the potential for a 'universal language' (such as sign language, a 'celestial syntax') to transcend the limits of the body—especially when these material limitations threaten communication with the outside world (or other worlds). It is also an apt metaphor for Galton's desire to develop links between planets that are 'deaf' to each other. Moreover, Galton is unwittingly touching on some enabling uses for his posthuman technologies—uses that benefit the disabled, for instance, and so contradict his own eugenic ideology. In other words, as we have discovered in the twenty-first century, posthumanism need not be eugenic. Posthuman technologies of dis- or re-embodiment can produce new subjectivities that are less grounded in the capitalist hierarchies of the body as they are now conceived (based on class, gender, race,

health, etc.)—technologies which are proving beneficial to groups reduced to the perceived limitations of their bodies.[136]

Galton, however, is still most interested in the eugenic production of posthumans. As Brookes observes, "Even on Mars, it seemed, Galton could not escape from his eugenic obsession. It was a case of new planet, same society" (242-243). In the "Martian Fantasy," his scheme for rational reproduction is borrowed from the ant's social structure, especially when it comes to gender. Galton's Martians are divided into three principal groups: the fertile females, the "perfect" males, and the neuter females (12).[137] The fertile females give birth to many eggs that are then "looked after and cared for by the neuter females, one to each egg like a nurse" (12). Once the larvae hatch, they are "tended with great care by the neuters who assiduously note and record the physical and mental peculiarities of each larvae with the view of determining which should be ultimately preserved and which destroyed" (12-13). On Mars Galton is even more extreme, or 'negative,' in his eugenic views than on Earth as he boldly outlines an extermination program for unfit 'infants.' Galton's other works rarely go beyond 'negative' calls for sterilization and mostly focus on 'positive' efforts, such as endowments, to encourage the fit to breed.

The neuter ants/nurses are responsible for the ruthless deed. These neuters, as they are described in the "Martian Fantasy," and in Wells's *The First Men in*

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[136] Hence the popularity of the term "cyborg feminist"; see Haraway's "The Cyborg Manifesto" and Hayles *How We Became Posthuman*. See also Cary Wolfe's "Learning from Temple Grandin: Animal Studies, Disability Studies, and Who comes after the Subject" in *What is Posthumanism*?

[137] Compare with Wells's description of the Selenites as displaying "in addition to the two forms, the male and the female, produced by almost all other animals, a great variety of sexless creatures—workers, soldiers, and the like, differing from one another in structure, character, power and use and yet all members of the same species" (*Moon* 189).

the Moon,[138] resemble representations of the 'New Woman' during the late Victorian and *fin-de-siècle* periods. The neuters, like the 'New Woman', are presented as genderless and asexual but also as oddly posthuman in their body-denying rationality.[139] Grant Allen, for example, famously describes the New Woman in "Plain Words on the Woman Question" (1889) as a "dull spiritless epicene automaton" (179). Galton likewise describes his neuters as emotionless and drone-like, without a hint of eroticism (like Cavor?). They form attachments to the larvae that are "of a curious intellectual kind" (13) and so they alone are able to perform the cruel task of eugenic selection: "the nurses weigh and observe the larvae sedulously and when the time comes, a consultation takes place and they kill quite coolly those of their young charges whom it has been judged untenable to preserve" (13).

In Galton's twist on eugenic feminism,[140] the logical neuters, rather than their more passionate male and female counterparts, are the perfect supervisors for the rational reproduction of the race. The "neuter females," after all, behave like computer-programmed clones, "possessing no quality that we should call lovable; they have no heart and little originality but they are continually occupied with work of some sort and cannot keep still for a moment" (14). Like Galton's posthumans, these neuters do not possess a strong sense of their own individual,

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[138] To Cavor's surprise and consternation, the Selenite matrons "are absolutely incapable of cherishing the young they bring into the moon; periods of foolish indulgence alternate with moods of aggressive violence" (203). Thus, as soon as possible, "the little creatures, who are quite soft and flabby and pale coloured, are transferred to the charge of *celibate females, women 'workers' as it were, who in some cases possess brains of almost masculine dimensions*" (203; my italics).

[139] The job of telegrapher, for example, was most often assigned to 'New Women'; hence, these new women were some of our first cyborgs.

[140] See Richardson's *Love and Eugenics*.

and liberal 'human', subjectivity; indeed, "whatever passion they possess is socialistic" (14). They "certainly care little for themselves but much for the community" (14). These robotic neuters are the ideal caretakers of the Martian future because they put the interests of the race, nation, and species ahead of the self.

The neuters stand in stark contrast to the deeply embodied fertile females who use their powerful physicalities and strong emotions to "queen it over the males" (14). These remarkably engendered Martians are "superior to any one of the neuters in size and strength" (14), possessing figures that "impose a demeanour that excites some fear in the weaker males" (14). Galton wants to transmit these imposing female bodies into the future even though he does not trust them to determine the nature of that future. He is after their fertility—their strength as lusty baby-making machines—but also their core competitiveness, which will work to ensure the survival of their offspring. He still finds value then, not only in his neuter's brand of posthuman socialism, but in holding on to those characteristics of liberal individualism that promote eugenic survival and success. Thus he does not mind when the fertile females "do not congregate and rarely easily associate" (14). They do not necessarily dislike one another, he writes, "but they are too jealous and self-contained for mutual or natural friendship. She keeps her own count" (14).

The males, like the fertile females, contribute more embodied impulses, such as virility, to the propagation of the race; they are "warriors," although they also bring potent brains as "the salt of the community morally and intellectually"

(14). The males "look on the neuters as 'hands' in a factory" (14-15). To them, the neuters are machines they do not dislike or condemn but rather see as "members of a different social stratum, who have to be dealt with in matters of business but not as friends" (15). Still, these rational and quite powerful neuters, like the New Women they resemble, threaten male domination and must be kept in check. Galton explains that, throughout history, "rebellions of the neuters have occurred, in nearly all of which the rapid and concentrated action of the warlike males have achieved bonds between the queens and males . . . as a result, the number of neutral pupae have been kept as low as national convenience would permit for subsequent generations" (15). Fascinatingly, Galton's seems to be seeing new and even threatening implications for his posthuman theory—namely, that dissolving the body and turning people into intelligent machines can give minorities (such as women?) a new and threatening agency within the social structure… yet he, rather cruelly, has the neuters kill their own kind.

In the end, the neuters are in control of Martian progress—culturally, biologically, and scientifically. Galton entrusts them with the power to eugenetically engineer the future of the species. They keep "some few larvae . . . for scientific investigation to see how this will turn out in the afterlife" because "it is only by careful experiment that the value of the larvae under which the selection takes place can be confirmed and the stock carefully improve" (13). The larvae become a metaphor for the entire salvationist narrative of Galton's eugenics as the neuters wait for them to undergo a biological metamorphosis more extraordinary than human development. The neuters watch as the larvae

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experience "rapid and continuous changes until the time comes that they burst their cases, aided by anxious neuters, and emerge feeble and limp: but as perfectly good Mars Folk" (13). These neuter-bred beings will become the posthuman future of the race. As such, in Galton's world, they will be expected to eventually undergo the same examination process as the humans in his next utopia, *Kantsaywhere*: "Then follows a long period of what may be called school and college life; after which certain probationary tests with accompanying ceremonies are gone through, and the probationer receives the full rights of citizenship" (13-14).

Unlike Galton's "Martian Fantasy," *Kantsaywhere* is more a utopia than science fiction. It follows the more traditional earthly route—albeit in a posthuman way—that More charted when he published *Utopia* in 1516; thus, Galton's novel diverges from the interplanetary plots of his own "Martian fantasy," Green's *A Thousand Years Hence*, and Wells's *The First Men in the Moon*. The novel's hero, I. Donoghue, a professor of vital statistics, travels not to the sun or moon, like Green or Cavor, but to Kantsaywhere, a colony established on *terra firma*, just as More's Raphael travels, Vespucci-like, to Utopia, or 'no place', off the coast of South America. According to Pearson, Galton started his novel with Donoghue's Gulliver-like adventures in getting to the idyllic colony, linking the work with the Imperial Romances of the last century (including his own *Tropical South Africa*), but these, along with the 'love episodes,' were famously destroyed, to Pearson's consternation by Galton's niece Mrs.

Lethbridge.[141] Mrs. Lethbridge, however, could only bring herself to destroy part

of the novel and passed on the rest of the mutilated manuscript to Pearson after

Galton's death with a note attached: "I was just thinking of writing to you about

'Kantsaywhere'," she wrote, "when your letter came. When I began the work of

execution, my heart misgave me so much that I thought I would begin by merely

'Bowdlerizing' it, and then see" (Pearson vol. 3a 413). She destroyed "all the

story, all poor Miss Augusta, the Nonnyson anecdotes, and in fact everything not

to the point—but there were a good many pages that I felt myself incapable of

judging" (Pearson vol. 3a 413).

Pearson pieced together the remains of *Kantsaywhere* and published the

fragments, along with a commentary based on his memories of the original

manuscript, in volume three of *The Life, Letters, and Labours of Francis Galton*

(1930). Although the manuscript has received much critical attention since,

especially from literarature scholars, it is impossible, as Morton observes, "to pass

any comment on the literary merits of the utopia" (130) because of its partial

destruction. Yet we can fairly judge, given the remaining fragments, Methuen's

quick rejection of the manuscript, Galton's lack of experience as a literary writer,

and his niece's anxiety over some of its scenes, that *Kantsaywhere* was an

imperfect novel—didactic, propagandistic, and self-indulgent. But it was also

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[141] On December 28-29, 1910, Galton's niece explained to Pearson, somewhat mysteriously, that her uncle was writing a novel, and that should he mention it to Pearson, she wanted him to persuade Galton "not to publish it, because the love episodes were too absurdly unreal" (Pearson Vol. 3a 411-412). Pearson gave little credence to her concerns: "Galton was failing in physique but not in mind, when I talked to him less than three weeks before his death; and to recommend him to destroy what he had thrown time and energy into creating would have seemed to me criminal" (412).

more than just the novel version of Galton's Victorian science or, merely, as Morton attests, "the lineal descendent of Galton's earlier essays both in clarity of exposition and in content" (130). For Morton, "*Kantsaywhere* was not the product of any new line of thought" (130), even though the novel's attempt to eugenically re-invent the traditional utopia comes across when he refers to the work as "a workable *genetic* utopia" (130; my italics). Indeed, Morton's use of the term 'genetic' here is important because the patterning of *Kantsaywhere* reflects the late Victorian and Edwardian shift from a more embodied and biological eugenic language to the even more data-based and posthuman language of genetics. Although, as we have seen, Galton's language always pushed towards the posthuman, his use of the new language of informatics—one he helped pioneer—grew exponentially as the century turned and biology shifted towards the discourse of Mendelism and the biometricians.[142] He was also gaining in confidence as eugenics started to take hold in Britain, where it was still mainly a matter of discourse, and especially in the United States, Germany, Canada, and Scandinavia. He was becoming a famous figure and his brand of Victorian data-collection was starting to become absorbed in, as well as fuel, a new twentieth-century culture of the eugenic posthuman. *Kantsaywhere* reflected this paradigm shift.

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[142] As Gillham explains, these two groups, the Galton-inspired biometricians (including Pearson) and the Mendelians (including William Bateson), were at odds yet they shared a biological language that was increasingly Galtonian in its obsession with data, quantification, and measurement. See "The Mendelians Trump the Biometricians" in *A Life of Sir Francis Galton* (303-324)

Nevertheless, Parrinder claims *Kantsaywhere* has had a negligible influence: "to my knowledge *Kantsaywhere* has had no impact on other utopias, and it is one of the least-known items in twentieth-century utopian studies" (1). Although this may be true, Galton's other writings on eugenics, as previously discussed, profoundly shaped the late Victorian utopia, which itself—through the figure of H. G. Wells alone—helped pioneer twentieth-century science fiction. Indeed, Galton's eugenics helped generate not only other late Victorian and *fin-de-siècle* utopias but also his own. It may also be true, as Parrinder points out, that "the role of eugenic discourse has been marginalized and virtually ignored in almost all recent surveys in utopian history" (1), but, given the existence of *Kantsaywhere*, the intimate connection between Galton's theories and utopia are hard to ignore, especially given that Galton developed eugenics through his reading of utopias. Thus, while the relationship between utopia and eugenics may be "too embarrassing to contemplate" and while "in most contributions to utopian studies, terms such as eugenics, heredity, and genetics do not figure in the index" (2), eugenics and utopia share common DNA patterns—such as an obsession with the perfectability of the race, nation, or species.

Indeed, Galton's boldest contribution to the twenty-first century utopia was his move from eugenics and utopia to, as Morton states, this "genetic utopia" or, as I prefer, the posthuman utopia. In *Kantsaywhere*, subjects are not only perfected but translated into information, their minds externalized, all in the hopes of achieving everlasting eugenic life as idealized technological spirits whose eugenic essence is captured in Galton's composite photographs, which, in the

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novel, serve as religious icons. In the end, *Kantsaywhere* was not just pure propaganda, as Pearson suggests, "a mere driving band to carry the force of Galton's ideas into the working parts of minds differing widely from his own" (413), but a way for him to conceptualize a posthuman future—a future without Darwinian extinction, without bodies, entanglement, or mess. *Kantsaywhere* presents his vision of an informatted Eden, a safe, technoscientific, yet pastoral (and colonial) space, and a futuristic return to a pre-Victorian and yet biotechnological order.

Thus, when Donoghue—whose generalized non-identity as "Dunno who" playfully undercuts his liberal subjectivity—finds himself in the midst of a eugenic society modeled on the rigid intellectual hierarchies of Cambridge and Oxford, he immediately becomes obsessed with self-quantification. According to Pearson's version of the story, Donoghue grows enamoured with a Miss Augusta Allfancy, who is about to take her Honours Examination at the Eugenic College. In order to win Miss Allfancy and to learn more of the customs of Kantsaywhere, Galton's hero decides to attain as lofty a Eugenics degree as hers. Love is statistical in Kantsaywhere; one needs the right data before romance, or rational reproduction, is sanctioned, especially amongst the natural elite.

Donoghue discovers that Kantsaywhere was established by a Mr. Neverwas; the colony, as these names suggest, is located in an immaterial netherworld detached from time, space, subjectivity, and from the specificity of the body. Its subjects are generalized ideals inspired by the composite

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photographs perfected in Galton's lab. The bureaucratic structure of Kantsaywhere is only vaguely outlined as a generalized model for other potentially eugenic societies (which will have to deal with material specificities). Donoghue reports that Mr. Neverwas has just died and that Kantsaywhere's 10,000 citizens are now under the control of a council. His will and testament insist that Kantsaywhere continue its eugenics experiment and that "the income should be employed in improving the stock of the place; especially of its human breed" (414).[143] The College is to "grant diplomas for inheritable gifts, physical and mental" (414). Early marriages are encouraged for people with diplomas. Mr. Neverwas outlined "with much emphasis" in his will that "none of the income of his property was to be spent on the support of the naturally feeble" (414). His money is intended "to help those who were strong by nature to multiply and to be well-nourished" (414). Kantsaywhere is not a democracy—Mr. Neverwas grants that the Trustees of the College are "sole proprietors of almost all the territory of Kantsaywhere" (414), and the moral ascendancy of the trustees is "paramount" (414).

As a society moving towards the posthuman, Kantsaywhere has a well-established culture of surveillance. Once in the colony, one's subjectivity is immediately externalized and informatted. Donoghue remarks that "on his arrival in this strange colony he found himself more 'keenly looked over' than ever in his previous experience" (414). He is made a specimen for scientific observation and

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[143] Galton, on his death, left £45,000 to the University of London to endow a Chair of Eugenics (Forrest 288).

ranking by a citizenry of Cavor-like rationalists. Before he can become a citizen and accepted into the public life of Kantsaywhere, his body, including his genetic history, must be quantified and categorized accordingly. Donoghue remarks that "it is the way of Kantsaywhere, for everybody is classed by everybody else according to their estimate or knowledge of his person and faculties" (414). In such a public culture, there are no private gifts or faculties.

Thus, Kantsaywhere has strict laws on immigration that exclude "the constitutionally unfit" from entering the colony (420). Immigrants, after all, have by definition mysterious or exotic, and sometimes unknown, origins. In such a xenophobic society, the immigrant becomes the inscrutable subject/object who needs to be controlled—and purified of potential contaminants—by being made known. In Kantsaywhere, "registered medical men" become the inevitable and necessary border guards used to police such a shifting, 'bohemian' population (420). They are put in charge of data collection and production, testing individual immigrants for "fitness in body and mind" and handing out certificates based on the perceived purity of the subject (420).

In this way, all who enter Kantsaywhere, either through birth or immigration, must—especially in order to obtain the right to reproduce—endure some form of bureaucratic disembodiment; they end up as statistical subjects filed away, numerically identified and ranked, in computer-like databases. If, for example, an immigrant fails the initial examination upon entry into Kantsaywhere, he or she will then be subjected to a "*more severe and tedious examination* . . . which is conducted in the building attached to the Custom

House" (420; my italics). The individualized immigrant body, then, must be completely exposed before entry and eventual assimilation into Kantsaywhere society. They lose their specificity and become generalized, like all the colony's proto-posthuman subjects. Once inside, immigrants must undergo further scrutiny as they are required to pass the Poll examination to officially become citizens: "immigrant parents, both of whom have received positive marks at the Poll examination, may keep their children with them, but not otherwise" (420).

In order to obtain his Eugenics degree, Donoghue must undergo yet another series of tests and earn a Pass certificate for "genetic" qualities.[144] The tests resemble that of the era's Army, Navy, and Indian Civil Service except still more "strict and minute" (415). His examiners, however, are all astonished that foreigners could know so "little with exactness about their grandparents and other ancestors, saying, that everyone in Kantsaywhere knew their own as well as if they had been their playmates and comrades, and that they all possessed an abundance of well-authenticated facts about them" (415). Family biographies—especially as collated in genealogies—are for public celebration and consumption in the colony.[145] History and memory, as preserved in these genealogies, is quantified just as Galton desired when he produced and published his *Record of Family Faculties* and the *Life-History Album* in 1884. In the end, Donoghue

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[144] Galton explains that by "by 'genetic' is meant all that is transmissable by heredity, whether it be of ancestral origin or a personal sport or mutation" (415).

[145] As Donoghue awaits the results of his exams, he flips through the Kantsaywhere calendar, which "contained the names of all who, since the date of the preceding edition, had either received marks exceeding +70 or any special award. The record in the Calendar of their doings was minute. It corresponded in length to the paragraphs of Burke's or Debrett's Peerages, but differed totally from them by containing anthropological facts, and little else" (419). According to Donoghue, "it was a mine of information for inquirers into heredity" (419).

receives a first-class P.G. (Pass in Genetics) degree. He has now become a data-produced subject, free to pass his data on to future generations. As such, he promptly imprints his "fingers in their Register, for future identification" (416). As an immigrant, of course, Donoghue's subjectivity is under exceptional scrutiny as his examiners attempt to decipher and monitor any unseen or latent impurities (i.e., criminality) he might be importing into the colony.

Donoghue's status as an immigrant also means he does not have the suitable records to earn him the highest marks for Ancestral Efficiency. He does not have the historical detail that would have come easily to the Kantsaywhere native: "as a foreigner to Kantsaywhere the hero doesn't know enough of his ancestry to please them" (415). He does, however, know enough to pass the test. If he had failed, he would have been considered officially unfit to have children. In Kantsaywhere, the future can only be determined by quantifying the past. The outcome for an immigrant with unknown origins, or for those with perceived hereditary deficiencies—in other words, for those with no numbers or with the wrong numbers—is genetic death. The failing candidate's genes and data have no future beyond him or herself. In this way, Kantsaywhere has more or less established a system of (eu)genetic engineering. The genetic immortality of specific subjects is assured so that their data may be blended with the data of the race, the overall quality of which is constantly being improved. In this way, Donoghue is gradually transformed into data as he is eventually exposed enough for entry into Kantsaywhere's super-elite, nearly posthuman society.

But first, in order to win Miss Allfancy, Donoghue takes the Honours

exam, which, as Pearson observes, is akin to the anthropometric tests performed

in Galton's South Kensington Anthropometric Laboratory. Pearson notes that

even Donoghue's description of the entrance, along "a long enclosure of lattice-

work, through which everything was easily seen from the outside" was identical

to Galton's first South Kensington lab. The latticework turns the lab into a public

space—an exhibit—with a voyeuristic screen through which researchers can be

seen encoding subjects. Soon, however, the medical scrutiny of the subject

becomes even more intense. The subject becomes completely manifest, albeit this

time in more intimate environs:

> I was then medically examined in a private room, very strictly indeed . . .
> It is wonderful how adroit the skilled medical examiners become in their
> task. Nothing seemed to escape their sharp observation, whether of old
> scars or any internal abnormality. My few defects were unimportant; I
> thought my vaccination marks had become invisible but they were quickly
> noted and minutely examined. (417)

In this test, the medical examiners of Kantsaywhere are externalizing and

quantifying the body's most private parts (according to the sensibility of the

Victorian and Edwardian eras) in order to protect the general population from

biological impurities. Health and cleanliness are emphasized. In Kantsaywhere,

the Examining, Inspecting, and Registering Departments "together form the soul

of the place" (419). Candidates can receive between 30 and 120 marks in their

tests. Just as at Galton's Cambridge, where examination results were made public,

so too at the Eugenic College of Kantsaywhere, "the names and marks of those

who gained 70 marks and upwards are published in the newspaper" (418).

After receiving a mark over 70 on the Eugenics Exam, Donoghue is finally accepted into Kantsaywhere society. Whereas he previously had to remain cloistered while awaiting his new status as a 'known quantity'—"the others evidently waited to learn how I should be placed, before letting themselves go, so to speak" (418)—he is now free to socialize with the elite, as a public Kantsaywhere subject, and to fraternize and flirt with Miss Augusta Allfancy. Now fully informatted, and numerically purified and ranked, Donoghue is free to pursue the eugenically-constructed object of his desire: "Persons may fall in love in Kantsaywhere as they do in England," he reports, "on grounds more or less unaccountable to others, but it is felt here that the best girls and the best men should have frequent opportunities of becoming friends and the earliest chance of falling in love with one another" (419). The statist rationale (and scientific rationalism) behind Kantsaywhere's reproductive policies is barely repressed by the romantic rhetoric. Love between statistical elites, such as Donoghue and Miss Allfancy, is encouraged by the promise of endowments such as farms, houses, hostels, and funds; these are "used to encourage early marriages among the most highly diplomaed" (419).

These elite marriages are encouraged, however, not for the benefit of the individuals involved but for the good of the race, nation, and ultimately the species. Love in Kantsaywhere is nothing more than a means to an end—a way to indefinitely extend the eugenetic lines that will eventually lead away from the liberal self and toward the posthuman subject. Thus, the intense scrutiny of Kantsaywhere-ians, whether immigrant or native, rather counterintuitively

deconstructs and even disperses, through data translation, the identity of the subject under observation. The citizens of Kantsaywhere, like the subject/objects in Galton's lab, become informational—little more than encoded collections of traits: "In Kantsaywhere they think much more of the race than of the individual . . . a person is therefore more important as a probable progenitor of many others more or less like him in constitution than as a mere individual" (414-415). In Galton's utopian vision, the individual is treated almost as a sport or mutation, or, as we shall see, an invading monstrosity. The true Kantsaywhere subject must not be recognizably embodied, or an aberration of any kind, but exists instead as an abstract generalization, a vessel for the purified generations to come—for the past and future and for time itself.

Thus, eugenics pivots disorientingly from being a theory obsessed with the perpetuation of human life—to the point of immortality—to one that inevitably seeks death. In its quest to cleanse society of the particular, eugenics seeks to rid the population of any sign of the fallible body, a constant sign of degeneration and mortality. Some recent theories of the cyborg and the posthuman, such as Haraway's and Hayle's, emphasize the ability of data-based technologies to empower groups perceived to be limited to or imprisoned by their bodies, including the disabled, women, and some minorities. These theories show the potential for radical bodily difference to be erased—through technological augmentation, enhancement, and re-embodiment—in the disembodied realm of cyberspace. Galton's eugenic posthumanism, on the other hand, punishes those most associated with the body for their perceived impurity and potential

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contagion. Donoghue reports that "it is difficult to describe the indignation and even the horror felt in Kantsaywhere, [sic] at acts that may spoil the goodness of their stock, of which they have become extremely proud and jealous. They look confidently forward to a coming time when Kantsaywhere shall have evolved a superior race of men" (416).

New categories of unfitness are created, such as feeblemindedness and imbecility. Subjects in these categories, like the disabled, are too individualized to be generalized into data and composites—their idiosyncracies would too clearly leave a mark—and so they must be banished, sterilized or worse. Donoghue explains that "a bureau was charged with looking after the unclassed parents and their offspring, and much was done to make the lot of the unclassed as pleasant as might be, so long as they propagated no children. If they did so, *kindness was changed into sharp severity*" (416; my italics). There is also a committee "charged with the care of those who fail to pass the poll examination in Eugenics. Such persons are *undesirable as individuals*, and dangerous to the community, owing to the practical certainty that they will propagate their kind if unchecked. *They are subjected to surveillance* and annoyance if they refuse to emigrate" (420; my italics). In other words, their data must be left to die just as they as individuals—with their secrets, unknowns, privacies, and threats—must be hidden from view, or violently exposed, in the Kantsaywhere sea of 'beautiful generalizations'.

These 'mutant' identities must be managed in case the contagion of individuality affects the statistical outcomes of such an eugenic population:

"people are not misled by the specious argument that there is no certainty whether the anticipations of their unfitness will be verified in any particular case and the individual risk may be faced. They look on the community as a whole and know the results of unfit marriages with statistical certainty whenever large numbers are concerned" (420). Galtonian statistics dissolves the individual (into populations) in order to predict or control the future. Eugenics is used in a society such as Kantsaywhere to ensure, first, that there is a future for the human race and, second, to ensure that the future is an improvement upon the past. Ironically, Kantsaywhere's denial of death, however, is certain death for 'unfit' populations. Although Galton's utopia does not go so far as to advocate for extermination, it does impose a genetic end on these 'defective' populations—the annihilation of certain information flows. The 'unfit' are forbidden from propagating their now quantified and exposed bodies; they are to leave no natural inheritance. To contaminate the perfect Kantsaywhere stock by having unfit children is considered "a crime to the state" (420).

Once Donoghue's data makes him acceptable company in Kantsaywhere, he moves from being the observed to being the observer. No longer the one surveilled and studied, he now studies the people of Kantsaywhere and their culture, scrutinizing "what might have been achieved by selective breeding" (422). His 'observations' provide Galton with an opportunity to propagandize eugenics by showing the advantages of a society grounded in his brand of proto-posthuman ideology. The results of course are attractive. Donoghue presents a

society perfectly at ease with itself and its future—except when it comes to the

horrors presented by the propagation of the 'unfit'—especially when compared

with the social anxieties plaguing *fin-de-siècle* Britain.

Just as in the "Martian Fantasy" and in *The First Men in the Moon*, both

sexes are assigned strict gender roles that emphasize their respective reproductive

energies. The men are stereotypically "well built, practised both in military drill

and in athletics, very courteous, but with a resolute look that suggests fighting

qualities of a high order" (422). Donoghue reports that the women, on the other

hand, are "thoroughly feminine, and I may add, mammalion":

> The physique of the girls reminded me of that of the 'Hours' in the
> engraving of the famous picture of 'Aurora' by Guido in Rome. It is a
> favourite picture of mine and I recall it clearly. *The girls have the same
> massive forms, short of heaviness, and seem promising mothers of a noble
> race*. The simple way of gathering the hair in a small knot at the back of
> the head, shown in the dancing 'Hours', is the fashion at Kantsaywhere.
> So is the general effect of their dresses, only here they are more
> decourously buttoned or fastened, than are the fly-away garments in the
> picture. (422; my italics)

Kantsaywhere's Aurora-like women are supposed to be hyper-maternal, the

"promising mothers of a noble race," yet their power and virility—their "massive

forms, short of heaviness" (422)—also resemble traditional forms of masculinity,

even introducing an element of androgyny into the scene, as in the Guido

painting. Furthermore, as Galton's description of the image becomes more

titillating, his Victorian prudishness emerges and he edits the scene so that the

women's dresses are more sensibly and "decourously buttoned or fastened" rather

than threatening to fly away in erotic, wanton abandonment.

In an era before technology made procreation without sex possible, Galton knew he needed to emphasize the reproductive power of Kantsaywhere's men and women. Yet, as he demonstrated throughout his career, Galton is only interested in sex as a means for the continuation and improvement of the race. Within Galton's eugenic ideology, which puts a scientific twist on Victorian modesty, sex is about rational reproduction rather than erotic seduction (and yet, as his niece's removal of the "love episodes" suggests, erotic tension and bodily desires are only just suppressed by the surface of his work, just as they were in that early encounter with Mrs. Petrus in *Tropical South Africa*). Erotic seductions after all, implies an unconscious and impulsive approach to reproduction that he believed was causing racial degeneration in Britain, especially amongst the upper and lower classes. Degeneration is not a concern in his utopia because, as Donoghue observes, "the 'arry and 'arriet class is wholly unknown in Kantsaywhere" (417).

Kantsaywhere's virile bodies are then processed into composite photographs. Galton's 'pictorial statistics'[146] form the basis of a eugenic religion in which the colony's chosen subjects—those ranking high enough to reproduce—are rendered immortal. According to Donoghue, it had become the custom in Kanstaywhere for each family to be photographed regularly, "both in full face and profile" (423). Each visage is superimposed over the other until a family type emerges and individuality dissolves. Donoghue is impressed by the quality of the portraits: "I am a bit of a photographer myself, and was delighted at the punctilious and exact way by which composites were made. There was no

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[146] Galton had defined composite photographs as the "pictorial equivalents of those elaborate statistical tables out of which averages are deduced" (qtd. Pearson 297).

acknowledged faking but the work was strictly truthful throughout the whole process" (423). As discussed in Chapter One, composite photographs were, for Galton, a bridge between the 'two cultures' of science and art in that Galton used composite technology to produce what he believed were aesthetic images. Donoghue, for example, refers to the portraits he finds in Kantsaywhere studios as "beautiful" works of art (423) and yet that art—following Galton's 'aesthetics of generalization'—is created from the scientific precision of the methods used.

Indeed, Galton goes a step further when he transforms his composites into representations of eugenic spirits and even religious icons. By having Donoghue insist that "there was no acknowledged faking" in Kantsaywhere's composites, he is transparently attempting to distance his own superimposed scientific images from those of Victorian spirit photography, which often involved doctoring images to create 'ghosts' with double-exposure. Yet Galton does, in his desire to provide his Kantsaywhere subjects with a creed or superstition, connect his composites to the supernatural. Donoghue remarks that "a peculiar interest lies in the close analogy between composite portraits and religious imagery" (423). Galton's science fiction thus allows him to transcend the limits of his own scientific realism just as Victorian spirit photography transcended, and exposed the myth of, photography's status as the "ultimate mimetic technology" (Armstrong 126). Despite Galton's attempt to distance his composites from spirit photography, the latter's influence on Kantsaywhere's religious 'creed' is undeniable.

Nancy Armstrong's description of the making of the spirit photograph in

Fiction in the Age of Photography (2002) helps explain what Galton might have

found appealing about the *effect* of, rather than the deceptive processes involved

in, such a practice. The spirit photographer would arrange the subject, "usually a

woman," in "a potentially otherworldly pose and dress and had her step outside

the field of vision while the negative was still underexposed. The woman's image

remained transparent, stripped of the accidental details that would tie that image

to a specific person, place, or time" (174). According to Armstrong, "the

transparency of the woman's image in the spirit photograph tells us she has

detached herself from that image and gone on with life outside the frame.

Transparency is, in this sense, a vital sign" (175). The vitality of spirit

photographs differs from more opaque realist photographs, which memorialize

their subject by substituting the image "for the object in question," indicating that

"this person or that thing is, in this sense, dead" (175). Indeed, photography

becomes a way to record, animate, and transfigure the immaterial:

> The spirit photograph flaunts photography's ability to produce an object
> that could not otherwise be seen, because that object has no existence
> outside the image. The ghost could be said to thematize this semiotic
> behaviour; it turns something old (a body) into something entirely new
> (the spirit body) by representing that thing (or body) as something that is
> no longer there (namely, a real human being). (175)

Although Galton denies it, his composites follow a similar pattern. Both forms of

photography—one scientific and the other fantastical—produce the same effect as

a simulation. They give the impression that "there is no there there" (to steal a line

from Gertrude Stein yet again); or as Baudrillard put it, they generate "models of

a real without origin or reality: a hyperreal" (1), which, I argue, borders on fiction.

Although she does not explicitly make the comparison between composite and spirit photographs, Armstrong does refer to Galton's composites as a "poetic notion of what made bodies legible" (18). As we have seen, he read his images for any "inborn and transindividual kernel of identity" (18). But the identity was never grounded in the real, the material, or, as Armstrong would put it, the opaque; they, by his own admission, looked like ghosts. Thus composite photography, "as a method of reading, reversed the priorities of object over image, so that the image usurped the position of the individual body as the basis of legibility" (19).

Galton uses his composite photography in Kantsaywhere to make his subjects virtual. Kantsaywhere's citizens are not only measured, quantified, and ranked—or informatted—but also transformed into generalized images that are composed in such a way that there appears to be no body and no origin; hence, like all dematerialized (proto)posthuman subjects, they cannot die. These veiled images emanate the eugenically cleansed genetic essences of generations while shrouding the disruptive particularities of the individual. They contain both the past and the future in each haunted face. They are statistical subjectivities with no beginning and no end, forming "universal clouds of spirit-watchers" (423). As Donoghue reports, the people of Kantsaywhere hold "the strong belief that the spirits of all the beings who have ever lived are round about, and regard all their actions" (423). Kantsaywhere's visionaries "actually see with more or less distinctness the beseeching of the furious figures of these imaginary spirits, whether as individuals or as composites" (423). But, in Kantsaywhere, the many

liberal humanist subjects—the individuals—are finally submerged into a quasi-mystical, and cleansed, consciousness meant to keep Kantsaywhere's citizens on their eugenic path towards the posthuman: "They are supposed," according to Donoghue, "to co-exist separately and yet many merge into one or many different wholes" (423-424). It is "a kind of grandiose personification of what we call conscience into a variety of composite portraits" (423).

The afterlife of the soul, after all, whether as conceived of in Victorian spiritualism or Christianity, did traditionally represent the ultimate form of cleansing through disembodiment—the sloughing off of the mortal coil. Galton's prescient genius was to conceive of this passage to the 'other side' as technological rather than metaphysical. Kantsaywhere's citizens believe that humans, rather than God, are in control of their own transmogrification, and transcendence means turning themselves into information—the only empirically enlightened form of eternal essence. With his eugenic religion, Galton was reclaiming a quasi-Christian ideal that had been fatally challenged by his cousin's finite materialism. His eugenic spirits were a secular yet phantasmic, fantastic take on the immortal soul, scantily clad in scientific language. After natural selection, Galton, more than Darwin, needed to be believe there was life beyond the mutating body—some way (via artificial selection) in which human beings could gain control over their own biological, spiritual, and social destiny.

This paradise-shift toward a eugenic religion, however, made some of his peers uncomfortable, especially Pearson, who tried to understand Galton's new magical thinking as follows:

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> It appears to centre in what I have termed the 'Generant' of the stirp, the composite individual who represents the entire ancestry of any person. Galton thinks of this in connection with his composite photography, and then introduces these Generants as an improved version of the Chinese worship of ancestors. They were to act as conscience to the new generation, in a land where citizens studied and were proud of their forbears. That Galton thought of this spirit world as more than a valuable 'superstition' I very much doubt. (424-425)

Pearson is determined here to show that Galton, by embracing "superstition," has not lost his reason, and his eugenics cause can still claim scientific authority. Yet it should make perfect sense, when we consider Galton's decades-long move toward a proto-posthuman dematerialization, that he would end his career on a note of virtual mysticism. Pearson reads Galton's eugenic religion as "an improved version [i.e., a scientific variant] of the Chinese worship of ancestors," which, although not a culturally accurate or nuanced description of the Confucian or Buddhist practices of venerating the dead, sketches out Galton's final push towards a eugenically-designed immortality. Galton's ancestors, unlike those conceived of in the religious practice, are alive, not dead; there is no fear of death in Kantsaywhere, echoing a basic denial reverberating through the heart of both posthuman and eugenics theory. The colony's custom is for everyone to feel "that they themselves will, after their life is over, join the spirit legion, and they look forward with eager hope that their descendants will then do what will be agreeable and not hateful to them" (424); in other words, they hope their descendants will continue to follow the eugenic order. Here we hit upon the true rationale behind Galton's need for a eugenic religion in Kantsaywhere. Belief and divinity in the fiction confirms the propaganda that he himself believed: eugenics would lead to immortality. According to Donoghue, "Their superstition certainly

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succeeds, even as it is, in giving a unity of endeavour and a seriousness of action to the whole population. *They have no fear of death. Their funerals are not dismal functions as with us, but are made into occasions for short appreciative speeches dwelling lovingly on the life-work of the deceased*" (424; my italics). Such is Galton's final challenge to his cousin's premise that the world is forever tangled in a mess of death and extinction that cannot be overcome by a posthuman "higher life."

But one of the consequences of life without death is that the perfectly embodied—and yet soon-to-be disembodied—citizens of Kantsaywhere are constantly at the mercy of a totalitarian regime of eugenic spirits that dominates their existence. These spirits drain the population of any last trace of free will. As Donoghue remarks, these spirits "watch the doings of men with eagerness, grieving when their actions are harmful to humanity, and rejoicing when they are helpful" (423). The Kantsaywhere population is controlled, then, not only by the Trustees, but by their ancestors, those around them who are dead yet live on forever. Liberation from the body, whether in the celestial kingdom or in cyberspace, is apparently not as freeing as it might appear. It also makes one wonder whether Galton, who himself had attended séances, including one with George Eliot and George Henry Lewes, felt haunted by his own venerable ancestors and sought their approval, even their resurrection, through his eugenics theory. The ghosts of Erasmus Darwin, and especially Charles Darwin, certainly seem to pass through his work. His own legacy, on the other hand, was a tragic and grotesque one, with eugenics providing at least partial inspiration and support

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for the horrors of the Holocaust. It is doubtful that Galton would have been proud, as a composite spirit, of his own twentieth-century intellectual descendants.

In the parlour at 42 Rutland Gate, Millicent Lethbridge sits before the fire, clutching the manuscript of *Kantasaywhere* to her chest. She weeps into her handkerchief as she drops a page into the flames.

"Oh, what shall I do? What shall I do?"

It is March 27, 1911. Galton has been dead for nearly two months.

Her letter to his executors sits on her uncle's mahogany desk. "When I began the work of execution my heart misgave me," it reads, "so I am returning the mutilated copy . . ." (Pearson Vol. 3a 413).

A gleaming bust of Galton looms over her as Milly rises to seal the letter. She regards the bust for a moment. The eugenicist's skull is imposing, its weight heavy in the room. She runs her hand along its bald outline and down the hard, broad mutton chops. She stares into her uncle's blank, bronze eyes.

She spots a ghostly image, just beyond the bust, staring back at her as if alive. It is a composite portrait that Galton had made of his family. Its pallid visage penetrates the darkness.

Milly moves towards the table and places her candle in front of the apparition.

"Oh, Uncle Frank, what shall I do?"

The only answer is the sound of paper crackling in the fire.

The door suddenly opens and a new servant, one whom Milly does not recognize, curtly announces that a Mr. Pearson has arrived.

"Thank you," says Milly. "Please send him in."

The servant turns to leave without closing the door but an electric bulb flashes from the hallway, blinding her as she gets used to the bright light rushing in.

"Good, good," Milly thinks, "I'll let Karl make the decision."

She blows out the candle and follows the servant into the hall, leaving the spectre of a generation of Darwins and Galtons and Wedgwoods and Butlers in a photograph in an empty room, glowering in the dark.

I SPY WITH MY POSTHUMAN EYE

This isn't God, this isn't God
God is just a statistic
God is just a statistic…

Religious and clean

God is a number you cannot count to
You are posthuman and hardwired…

This isn't God, this isn't God
God is just a statistic
God is just a statistic

Marilyn Manson, "Posthuman"

The year is 2045. We are in virtual reality. That is, I am wearing sunglasses that have me jacked into cyberspace. There is a flash drive behind my ear. To the extent that my body still exists, it is plugged in. It has become a prison that I now refer to as "meat." My cells are filled with tiny robots that repair themselves and keep me living indefinitely, re-setting the code of my DNA and perpetuating my genes into an endless future.

The sea in front of me is a hallucination, washing the shore blue and unusual in a tide of ones and zeros. There are chrome stars over my head in a sky the colour of a flickering television. The molecular code eventually washes over me as I pray to no god but myself, purified as I am in these pixellations of light and numbers.

Enter Galton. Out of nowhere his opaque form materializes. He appears solid, with his mutton chops and cravat. His blue eyes, however, stare vacantly from his head. He looks like a photograph, an apparition. Perhaps a hologram.

"So, I have resurrected you," I say, taking his hand. "A perfect reboot."

But he is mesmerized by the infinite shoreline and the glowing grains of

sand that dot the horizon in vast fields of illuminated data.

 "I am alive," he says softly and begins to count.

"Yes," I say, "you are a construct."[147]

On February 10, 2011, *Time* magazine announced that 2045 is "the year

man becomes immortal." The cover photograph was a close-up of an androgynous

bald head facing away from the camera, a thick silver wire running from the nape

of its white neck and out of the frame. The bust's brain, the image implied, is

plugged in. The novelist Lev Grossman wrote the inside story for *Time*, in which

he enthusiastically, sometimes even breathlessly, describes the emergence of the

posthuman. Instead of using that term, however, he borrows Kurzweil's use of the

"singularity,"[148] a term taken from astrophysics and Vernor Vinge,[149] which refers

to "a point in space-time—such as inside a black hole—when the ordinary rules

do not apply."[150] There is now a rapidly growing movement, we are told in the

article, of "singularitarians," a subculture that believes we will soon have the

technological ability to create a superhuman intelligence, and at that moment our

own human era will reach its end. In the new era of the posthuman, or

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[147] Details for this vignette were taken from William Gibson's *Neuromancer* (1984) and from Ray Kurzweil's *The Singularity is Near* (2005).

[148] See Kurzweil's *The Singularity is Near*; the term 'transhuman' is also used: "A belief that the human race can evolve beyond its current limitations, esp. by the use of science and technology" (OED online: Third edition, September 2008; online version June 2011. http://www.oed.com.proxygsu-val1.galileo.usg.edu/view/Entry/247652: accessed 21 August 2011).

[149] See Vinge, "The Coming Technological Singularity" (1993) < http://www-rohan.sdsu.edu/faculty/vinge/misc/singularity.html: accessed 25 August 2011>.

[150] See Grossman, "2045: The Year Man Becomes Immortal" <http://www.time.com/time/magazine/article/0,9171,2048299,00.html>.

"singularity," we will be able to "scan our consciousness into computers and enter a virtual existence or swap our bodies for immortal robots and light out for the edges of space as intergalactic godlings. Within a matter of centuries, human intelligence will have re-engineered and saturated all the matter in the universe."

Grossman never takes a historical approach to the subject of the posthuman, but his language is backlit by eugenics. In the future, he writes, "we ditch Darwin and take charge of our own evolution." He describes Kurzweil's vision as one in which "the human genome becomes just so much code to be bug-tested and optimized and, if necessary, rewritten. Indefinite life extension becomes a reality; people die only if they choose to. Death loses its sting once and for all." In other words, the singularity movement is deeply anthropocentric and just as egoistic, scrutinizing, data-obsessed, and death-denying as eugenics. Grossman emphasizes the scientific credibility of singularity theory, demanding the movement be taken seriously: "The difficult thing to keep sight of when you're talking about the Singularity is that even though it sounds like science fiction, it isn't, no more than a weather forecast is science fiction. It's not a fringe idea; it's a serious hypothesis about the future of life on earth." Yet he misses many of the social assumptions undergirding the science fictional theory, especially its eugenic bent.

Five months earlier, in a remote corner of the Internet, a little-known academic writing for a little-known blog named *Counterpunch* was telling a different story about the Singularity and about Kurzweil's research in particular.

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On September 15, 2010, David Correia published an article, "If Only Glenn Beck

Were a Cyborg," in which he expressed skepticism about the coming

"technorapture."[151] Whereas Grossman was concerned almost entirely with the

future, Kurzweil's philosophy made Correia think hard about the past. After

attending the 2010 Singularity Summit in San Francisco, Correia came to the

conclusion that "the [S]ingularity movement is old-fashioned eugenics with better

techniques passing itself off as pragmatic postmodernism." Both the eugenicists

and the singularitarians were involved in "science and technology applied to the

question of human perfectability." Correia argues that the American left, in

particular, should be more critical, and less over-awed, by such techno-

utopianism. They should be attuned to an eerie echo running through both

theories:

> The dark side of eugenics hid behind the edifice of science and the
> scientists who advanced the goals of eugenics policed the building. They
> painted their critics as [uninformed] technophobes who lacked the
> necessary scientific background to comment or criticize. Arrogant claims
> of technotranscendence are being elaborated once again, this time by
> singularity movement scientists who ignore the social costs and
> inequalities of an emerging military-led technocapitalist version of
> progress.

While there are important differences between these two movements that Correia

ignores—e.g., the potential for posthumanism to benefit communities such as the

disabled, summarily dismissed as "unfit" by many eugenicists in the past[152]—he

does provide arguments that should give us pause. As I have argued throughout

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[151] See Correia, "If Only Glenn Beck Were a Cyborg"
<http://www.counterpunch.org/2010/09/15/if-only-glenn-beck-were-a-cyborg/>.
[152] Kurzweil, though, kicked off his career by inventing a machine to help the blind.

Posthumanous Victorians, the connection between eugenics and posthumanism is not superficial. The commonalities are bound into the DNA of both movements.

As shown throughout this dissertation, both eugenics and posthumanism are powered by a common religious faith in the virtues of technoscience; but they are also powered by a desire to purify human consciousness of its body, to turn human consciousness into information, to make it public and intelligent, and to render it ultimately immortal. Both theories articulate a deep fear of the body—of the material world as a whole—because of its rootedness in decay and death. While impossible to predict, the political consequences of a new death-defying attempt at data-cleansing, as Correia points out, could be grave, especially given our increasing reliance on technology and his definition of "technotranscendence" as "an eclipse of biological limits and therefore of social relations thus foreclosing the possibility of social and political struggle." In other words, once we are rid of the body, we are rid of bodies in the streets, which have historically and collectively formed the heart of all successful political and social resistance.

The technological 'oneness'—which Correia sees, ironically, as the triumphant return of the Individual—promised by both the eugenic superman and the posthuman implies a harmonious erasure of the diversity and multiplicity that is evoked by a theory which both movements claim as an antecedent: Darwinian evolutionism. As Beer observes, Darwin's theory "welcomed difference, plenitude, multifariousness so that the exigencies of the environment were persistently controverted by the genetic impulse towards variety and the multiformity of environmental responses as well" (*Darwin's Plots* 12). Correia

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argues that uncritical technoscientific movements such as eugenics and

posthumanism, on the other hand, rather than bringing about the human liberation

they promise, announce "the zenith of bourgeois values like efficiency,

productivity, and standardization germlined into the human genome." He calls on

'progressives' to get over their fears about being called 'luddites' and

'technophobes' and to consider "the necessity of a politics of technology that

considers the social costs of military technologies of human perfectability."

The gulf between Grossman and Correia underscores the urgency of my

arguments in *Posthumanous Victorians*—in confronting the past in cultural

studies and in contributing to a new historical cultural studies that can help inform

us of connections that not only illuminate our understanding of the technological

past but can guide us into a more self-aware and self-critical technological future.

As this dissertation has shown, it is imperative that we recognize Galtonian

eugenics as a proto-posthuman movement and posthumanism as at least

potentially and partially eugenic. We must have a critical discussion—beyond

Hayles—about what it really means to lose the body and the material world, at

least as we now know them, especially as we become more lost in virtual

hallucinations, take on more virtual identities, and lurch inevitably toward more

virtual horizons. We need to seriously consider what is lost and gained when we

plug in. My argument suggests that there is at least a strain of posthumanism that

is ideologically eugenic in its vision of virtual reality as a space of political,

social, and biological purification and homogenization, or that at the very least

has not, and is not, considering the social consequences of the received idea that reality needs constant enhancement and augmentation (not unlike the capitalist system assuming that corporations need constant profit and growth). As Correia notes, these posthumanists, funded by Google and NASA, do not care to question the motives of the concentrated corporate and military entities that support their research—and the benefits that might come to these other posthuman, incidentally immortal, consciousnesses when our own are downloaded online for all the world to see.

Science fiction, of course, has been inventively addressing these questions for decades, starting with the Wells and Greens of the Victorian period but flourishing in a twentieth-century ripe with their literary descendants. Science-fiction writers of the last half-century, for example, such as Philip. K. Dick, William Gibson, James Tiptree, Greg Bear, Margaret Atwood, J. G. Ballard, and Joe Haldeman (to name a few), have been constructing imaginary utopian and dystopian worlds that amount to richly philosophical and often beautifully artistic inquiries into the efficacy and desirability of unfettered technoscientific progress. Yet, as a whole, these writers have been shunted to one side as purveyors of 'genre fiction' rather than regarded as serious intellectuals and artists—necessary voices—in our current techno-political environment. These writers and their works should be helping set the terms for more robust debates—about Correia's radical politics of technology—rather than being marginalized as geeky gamesmanship of little cultural value. Wells and Green, for example, and even Galton himself, have left us literary works that provide invaluable insight into the

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posthuman dilemmas electrifying the nineteenth century, some that still reverberate today.

We should also remember, especially as we read posthumanism through the lens of eugenics and vice versa, that both Kurzweil and Galton are products of a Western culture that has a long tradition of denying death ("Rage, rage," shouts Dylan Thomas, "against the dying of the light") and has spent millennia creating subjects, Biblical and Cartesian, split between a body and a soul (Yeats' soul, for example, is "fastened to a dying animal"). Darwin stands almost alone in his attempt to re-imagine human existence as fully biological—replete with death, loss, grief, and eventual extinction. What is more, Darwin had the temerity to celebrate materiality in its own right, even seeing "grandeur in this view of life," as he famously declares at the end of the *Origin* (459). With his metaphor of the entangled bank, "clothed in many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth" (459), Darwin reminds us that there is both beauty and necessity in not only our acceptance of finitude but also, as Gerard Manley Hopkins sings, "all things counter, original, spare, strange." The mulch, the mutations, and the true monstrosities are essential to the dying life that teems about us. Perhaps this is why, after more than a century, Darwin remains the radical, and we, the posthumanous Victorians, seem conventional in our relentless Galtonian search for a technological escape from the inescapable fact of our perplexing unruly bodies.

"I have been dead for some time now," says Galton, his shadow stretched out behind him on the shore into a projection of infinite dusk.

"100 years," I say. "A century."

"Yet I am still here—relevant."

"That's my argument," I say, as my pregnant body wriggles in front of the computer screen, punching in this narrative. "Here, let me get you a blanket," I say. "You're freezing in this ice."

"The matrix is cold."

"It's permanent winter," I say, with a grin. "Wintermute."

"So this is what it means to be posthuman," he says looking around, gazing through the Platonic ideal that has become his hand.

"We are—*almost*—purified of our bodies," I say.

"Immortal," he says. "God-like."

"Or perhaps merely pertinacious," I say, obsessively typing binary code into flashing signifiers, conjuring his floating mirage, opening my hand across my protruding belly, catching a fluttering kick. "Even perverse."
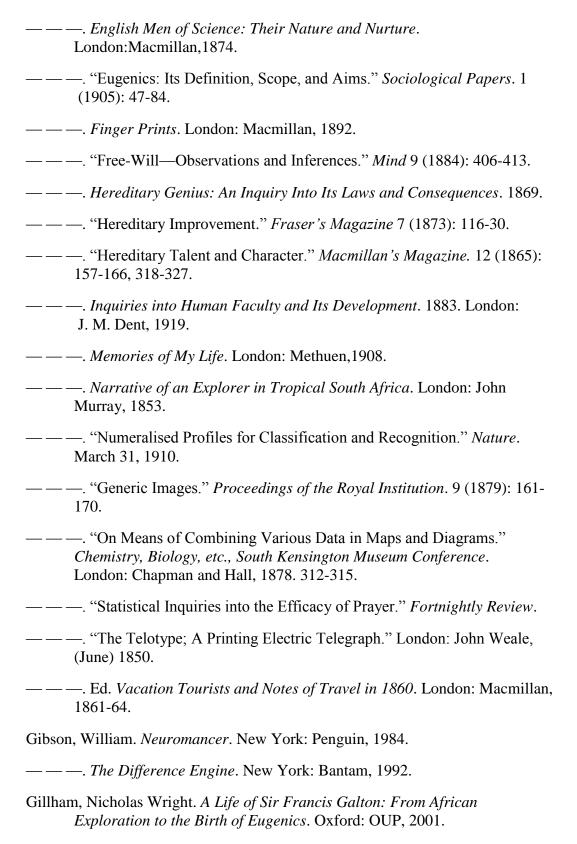
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APPENDIX

In the following paper will be found a translation of a series of messages which will appear in the Bellona newspaper of the planet Mars.

The translation is faithful. This numerical system of the Mars folk—their messages and so forth—we translate into our own terrestrial, so to speak, expressions, which would otherwise be misinterpreted or unintelligible without explanations.

This book will of course be of interest to the students of the occult sciences. I satisfy the legitimate demand for proofs on the part of these professions.

How indeed would it be possible to articulate on behalf of a creature hundreds of millions of miles away from the earth without methods which are termed supernatural?

Extracts from the Bellona Gazette:

To the Editor, Sir,

Mars is about to approach the Earth. The Earth will approach to Mars and Mars will appear to the Earth Folk as a brilliant planet shining during the whole of the Mars opposition, on each successive night. I urge again, as others have been urged, to take this opportunity of flashing some visible signals to our nearest

neighbour. We might be able, for example, to flash sun signals to them, which they might subsequently return when the earth moved so far from the direct line between Mars and the sun as to appear as a luminous crescent. In short, Earth might signal pretty freely during the beginning of the first quarter and towards the close of her third quarter. She would then be millions of miles from us; far indeed but not too far for the purpose. The cost and magnitude of the signaling would of course be very great, but not insurmountable, if we consider, on the one hand, the acres of glass and hot houses we would need, and, on the other, the magnitude of our population. It seems not at all unreasonable to hope that some practical scheme might be worked out by which thousands of mirrors, each the charge of two men, one of whom should indicate the directions and the other the duration of the flashes. Some benefactor, who we are destined to make famous, might carry through the undertaking . . . . Optimist

Letter from Pessimist:

The proposal of the Optimist would be too absurd for us to notice were it not that enthusiasm is catching and that probably of your numerous readers there are many who bring forth enthusiastic or ignorant ideas in need of guidance.

I will not enter into consideration whether the signals are possible, but will merely point out that it would be very little value even supposing it to be the case that the signals turn out successful. The result could only be that we had made a signal and that the Earth reciprocated it. This would no doubt be of value proving that the Earth was inhabited by observant and intellectual beings and very

probably it is, and this costly fact would be placed beyond doubt. This would be the sum total of what we could possibly learn from the Earth Folk but with no common language we would consequently be no nearer to natural communication. We could never learn what we most want to know, such as the forms and features of the inhabitants of the Earth, their industry and inventions, their social life and the exact amount of their intelligence and so forth. If it were possible to learn all, or a part, a costly experiment might reasonably, understandably, be worth it. But at this stage, the knowledge that we could achieve by signalling is too ludicrously small. Thus, the proposed experiment could not be otherwise than a piece of wasteful foolscap . . . . Pessimist

Letter from Common Sense:

Sir. The ideas proposed in the letter from the Optimist are almost too absurd to notice, but as there are so many ignorant Mars folk and as the idea is catching and as readers are enthusiastic I beg you to think about a few common sense considerations before they are led away. First, supposing the costly apparatus has been made and the thousands of men have been obtained and paid for and instructed to work it, what is the best it could it lead to? We should learn that Earth was inhabited by observant mechanical creatures having some understanding but beyond that nothing. Mars would have, so to speak, waved something; Earth after some weeks or months would have waved in reply. Our knowledge of the Earth Folk should go no further—it would clearly be impossible to communicate in an intelligible way, even if signalling to and fro were possible.

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We have no common language and nothing whatever in common. But consider that even under the most favourable circumstances the costly undertaking would lead to almost nothing. On the other hand the probability that the Earth is inhabited by creatures who could and would attempt to reply is infinitesimally small. Its animals and plants must differ widely from our own. However various and numerous they may be, it is scarcely likely that any one of them should so far have arrived at the mental stature of Mars Folk, who are the lords of all living things in their planet and possibly of the universe.

Yet the students of evolution prove that we Mars Folk are mere varieties of the common ant and descendants from a common stock. Ants have six limbs and the hard skeleton that supports their frame, like ours, is external. This population is divided into fertile females, males, and working neuters and so on. The only really novel point in our structure is the arrangement for expelling air through a reed-like structure in various ways that produces a variety of different sounds combined with a complex apparatus by which can be heard distinguishable sounds at a distance. For we and the ants are provided alike with at least five principle senses, taking sight, feeling, taste, and smelling and at last the antenna. Therefore, although we are vastly bigger, measuring fully 4 feet in height, and although our faces are far less prognathous than theirs and altogether more shapely and precise, and although our four pairs of limbs are furnished with delicate apparatus for touch, these details do not affect the essential similarity. When one of our artisans is sitting on the ground, on their hind legs, grasping an

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object, the limbs act like a vice while he operates with his hands. It looks just like an ant.

How can we expect that the evolution of Earth folk should have followed the same particular line as that of our ancestors and ourselves, for the insect form is capable of being diversified in an indefinite number of different directions. Nay, why should this structure of Mars Folk have originated from a similar source? It is conceivable that the vertebrate class of animals may have large capacities for development and that the ruling Earth Folk may be related to the slow and obstinate ass, to the agile and mischievous monkey. Anyhow, it is most improbable that the ruling Earth Folk, if such there be, should have any features, thoughts, or feelings in common with ourselves that would make rational intercommunication possible even if they had all facilities for rapid signaling. If a community of Mars Folk chose to spend a fortune in carrying out the proposal of "Optimist," the name of that community would undoubtedly be(remembered for many years to come as associated with a most egregious piece of folly . . . .
Yours, Common Sense

Letter from Bellona Observatory:

It will interest your readers to learn that certain phenomena from the earth and careful observation from the assistants for some time past on the surface of the earth require very careful investigation with a more powerful telescope than the observatory has at its disposal. It is well known that a small luminous spot is often visible on the globe of this earth which is unquestionably caused by the

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reflection of the sun from the face of one of its seas when the water is calm and the sky clear. The phenomenon about which I am about to speak is also a luminous speck but distinctly smaller and more visible. It proceeds from the snowy part of the Earth's surface, which is not as green but is apparently a high plateau, which is not sea, situated in the neighbourhood of what appears to be a tract of snow in a subtropical region. It is noticeable that the land in question is one that for a long time has been described by astronomers as rarely hidden by clouds and so is a hopeful territory for signals. These flickers show up apparently in a purposeful way, as though an attempt were being made to attract notice by flashing sun signals. It appears to me from experiments I have made that a telescope of at least double or treble the efficiency of the one under my control would be required to carry out the verification. It would not be extremely costly as some delicacy of definition might be sacrificed in order to preserve illumination and magnifying power . . . . Bellona Observatory

From the Editor of the Bellona Gazette.

We are pleased to announce that all of the parts of the huge telescope that has been made under cost, as asked for by the astronomer in charge of the Bellona Observatory, are made and will very shortly be set to work in investigating the curious scintillations on the surface of the Earth, which are still visible going on as has been observed by numerous astronomers since their existence was first pointed out in late summer by the astronomer through the medium of the Bellona Gazette. The results to be derived from the new telescope are awaited with the

keenest anxiety by all scientific men, and will from time to time be announced in these columns.

Letter from the Astronomer of the Bellona Observatory:

In anticipation of the appearance in brief of a preliminary report made by me to the Board of Directors, I send the following extracts for publication:

"The new telescope fulfills everybody's expectations and enables astronomers of the Bellona Observatory to clearly see the flashes from the surface of the earth. They appear to be undoubtedly signals directed at us, but what may be their meaning I have as yet no clue as to how to decipher them. They consist of what may be called messages that last for an hour or so. Each message consists of what appear to be words separated by intervals of several seconds. Each word consists of 1, 2, 3, 4, or 5 signals, as the case may be, and these signals are severally short, medium, and long flashes differently arranged in the different words. The intervals between the signals in the same word are of 1 ½ second duration. The short signal is of the same length, the medium is 3 seconds and the long 5 seconds. This difficulty of accurately recording the signals will soon be got over by a simple instrument now under construction. It is a cylinder covered with paper that revolves slowly by clockwork or an axis. A pencil is pressed during the duration of each flash. Then a spiral record is left on the cylinder that can be studied at leisure. The manuscript records already made are very imperfect. This was owing to a multitude of small inadvertent accidents which need not occur again. It thus far appears that one of the messages has already recurred.

I gather from this that the series of messages is not small and that most of the messages are repeated. I think that the one which is the most often repeated contains the clue to deciphering others.

The record of a message will probably be made when it has been flashed a second time so the records of the frequently repeated message will be exact and ready for study, and the remainder will be equally well observed before long.

A Special Edition Editorial:

A hastily called meeting of the Bellona Geographical Society will take place that is exciting the most extraordinary interest. If we are rightly informed, it is alleged that the frequently updated messages have been completely deciphered and that full description of the matter and of their meaning will be given tonight by the communal astronomer.

Newspaper Article (Large Type Heading): The Anticipation of Full Decipherment of the 1st Message from the South:

The wildest anticipations of the scientific meeting as of last night are fully realized. The room was crowded to excess and the antennae of all present were in constant restless agitation. The illustrations were given by means of the lantern showing in succession every one of the signals in the first message, which were so arranged that their meaning was clear and each interpretation was obvious. The principle of which these messages have been framed is of the utmost simplicity.

The result is that the symbols are determined for expressing any desired numerical combination. There is one for equals and for the signaling of addition subtraction multiplication and division. The method employed by the Earth Folk is so simple and best explained as below in which the word that corresponds to any given signal is printed in italics and brackets, but when the correspondence has been <u>proved</u> it is thenceforward printed in ordinary type, but still in brackets. There is no need to puzzle the reader at first by printing all the symbols themselves except in their actual form. A sample of them will suffice.

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Preliminary Notes

6 legs like centaurs; they like divers costume; antennae communication like deaf mutes; Oxford; middle limbs with claws, artisans used them.

Neuter females for work like women knitting & sewing, love eggs and larvae; aversion to males. Great fears of conflict with fertile females.

Males vivacious warlike (only inferior during each season of love?); chivalrous with gesture and resides with their loyal and fertile females. Fertile females about 1 to 10 males; House wifery no care for them, the neuter females do that. They select their males & rule.

Egg for a short-time, for 6 months, are watched and tended much as growing. A selection of about 1 in 10 made and allowed to pupate and the neuter have some passion for the future pupae; the ants emerge and grow with great anxiety and interest; go to school and college.

The social system is full of interest but will not be touched on here—many communities, usually at war.

Bellona war battle warrior aims sword spear lance digger club mace arrow bow sling archer sword spur trumpet drum murder homicide fury cities hate despair groans agony, shriek, yell, blood, slaughter, wound, gash, victim, conquerer.

The Mars Folk are eventually of the wisest type and are reasonable ants in many particulars, though far larger and more highly developed. They walk on four legs. Their fore pair of limbs are grasping hands. In their power of and variety of grasp and delicacy of touch though of course they differ greatly from human hands (in the way by which these faculties are attained). The Mars Folk will open the middle and hind pair of limbs, like quadrupeds, with their heads erect and arms free. They bear a heavy resemblance to small centaurs—they are very agile—and their heads are about the same height and thickness. Each of the middle pairs of limbs are like those of ants, with a powerful pair of claws. These are of much use to artisans who grasp objects they are engaged in fashioning with

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their two hind limbs, between the claws of the middle pair, and their hands are free to operate upon it.

Their skeletons are of course wholly external, but its weight is unimportant since the force of gravity on Mars is only one third of that on the Earth. Their sense of hearing is almost deficient but their eye power is acute and ample. Their lateral eyes, as in ants, are of the mosaic type. They consist of a vast number of facets each of which reflect a beam of light so narrow that objects are equally in focus at all times with the result that almost the whole panoramic area is simultaneously in view and no change can occur in it without attracting attention. The Mars Folk are therefore even more alive to what is going on around them than our deaf-mutes. The 3 frontal eyes are like ants, of the same order as our own, one of which is highly myopic, and they are highly developed. In short, the optics of the Mars Folk are extraordinarily more efficient than our own, both in the acuteness of vision and in the width of the field of view. They see minute and distant objects with the keenest eyes of eagles and their eyetoid is quite as efficient as ours with the aid of an opera glass. Their senses of taste and especially that of smell are highly discriminative and so is that of the touch in the hand and certain parts of the body through the medium of claws which has through-holes in the external armour to protect the sensitive flesh behind.

But above all the rest in delicacy of touch are the antennae, which in conversation between social equals and friends are in constant movement and touch. They convey not only as much as ordinary men & women can convey by grasping, squeezing, and gentle holding of the hand *but quite as much as any*

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thought reader or rather any gesture interpreter can make out from them. This peculiar power leads to curious customs. One is that in diplomatic conferences, where whatever is "said" is conveyed by signs at the council table, and to all, the members are obliged to wear an official costume consisting of a sort of helmet with horns to contain and conceal their antennae. Their public utterances are by gesture languages like that of deaf mutes, which may be seen in operation any Sunday in the deaf mute chapel on Oxford Street.

These people are divided, as ants are, into 3 principle groups: the fertile females, the perfect males, and neuter females, but their proportionate numbers differ considerably. In the same community, there are usually many fertile females which is the case in ants owing to one of the few exceptions. And attached to each of these there are about half a dozen or a dozen males. The season of love is of brief duration, and at other times of the year social life proceeds calmly even among the males, though they are always about to fight on slight breaches of honour.

Life is begun in the form of an egg laid about a fortnight after the close of the mating season and attended by a neuter female. Each fertile female, in quick succession, gives birth to a large number of them with equal strain to her health and strength. Afterward, she cares more about the egg but returns to her usual housewifery and honourably queenly life, while the eggs are looked after and cared for by the neuter females, one to each egg like a nurse. *In time, the larvae hatches and are tended with great care by the neuters who assiduously note and*

record the physical and mental peculiarities of each larvae with the view of determining which should be ultimately preserved and which destroyed. Perhaps 20 times as many larvae (eggs) as will suffice are allowed to pupate. The attachment of the neuter nurses to the larvae is of a curious intellectual kind. There is no affection or love in it, for these neuter females seem incapable of true affection. Anyhow, the nurses weigh and observe the larvae sedulously, and when the time comes, a consultation takes place and they kill quite coolly those of their young charges whom it has been judged untenable to preserve. Some few larvae are always kept for scientific investigation to see how this will turn out in after life, it being of obvious importance to the community that the selected larvae should really be the best of these, and it is only by careful experiment that the value of the larvae under which the selection takes place can be confirmed and the stock gradually improve. The larvae lead a largely animal existence—feeding—and their numbers are reduced until at the time of pupation those they intend to keep alive are in a huge group perfecting.

When the larvae show signs of approaching pupation, they are placed into separate cells. There they lie, outwardly, but inwardly undergoing rapid and continuous changes until the time comes that they burst their cases (chrysalis), aided by anxious neuters, and emerge feeble and limp but as perfectly good Mars folk, so far as physical form is concerned. *Then follows a long period of what may be called school and college life, after which certain probationary tests with*

accompanying ceremonies are gone through, and the probationer receives the full

rights of citizenship.

It would take far more space than I have to describe the social life, so different from our own, of these communities where stability rests largely on the their constitutions. The fertile females queen it over the males. They are superior to any one of them in size and strength, and such is the constitution of the sexes that their figures impose a demeanour that excites some fear in the weaker males. They also evoke their chivalrous loyalty and attachment. The fertile females do not congregate and rarely easily associate; they do not necessarily dislike one another, but they are too jealous and self-contained for mutual or natural friendship. She keeps her own court, and they intercommunicate with neuters as equals. The neuter females possess no quality that we should call lovable; they have no heart and little originality but they are continually occupied with work of some sort and cannot keep still for a moment. Whatever passion they possess is socialistic. They certainly care little for themselves but much for the community, and though very obstinate in small things are <u>practically</u> directed by the males with the concurrence of the queens, towards which they affect or hold a peculiar attitude of neither love nor of loyalty but rather of respect on which grounds that the community would keep from becoming become extinct. They replenish it through their eggs.

The males are warriors. They have all the truly male virtues and defects of our race. They are the salt of the community both morally and intellectually. They

look on the neuters as "hands" in a factory, not particularly disliking or condemning them, but as members of a different social stratum, who have to be dealt with in matters of business but not as friends. In the course of history, rebellions of the neuters have occurred, in nearly all of which the rapid and concentrated action of the warlike males have achieved bonds between the queens and males. *As a result, the numbers of neutral pupae have been kept as low as national convenience would permit for subsequent generations.*

That past of their civilization which will chiefly concern us is the mechanical and mathematical side which is fully as much developed among their professionals as in our own, *and as the laws and materials of nature are much the same throughout the solar system, their inventions are to a considerable extent parallel to our own though different in details*, but their ethics are altogether of another kind. Their consciences are not like ours nor are their chief pleasures and ambitions like those by which we are moved. They are far more alien to us than the Chinese and that is saying not a little. Into these interesting psychological topics we must not enter now, for they have no <u>direct</u> bearing on the work before us.

From the *Bellona Gazette*:

We are able with much pleasure to announce that all the parts of the huge telescope, which has been under construction during the last several months, for the Bellona Observatory are completed. They are now being put together with most rapidity in case any unexpected difficulty should occur. The telescope will

be in working order in a few days and a commencement made in the study of the very curious scintillations observed in the one spot on the surface of the Earth. Since their occurrence was first publicly announced in this column by the Director of the Bellona Observatory after he observed their existence, the sighting has been confirmed by every other astronomer, so interest is excited. The scientific work has become greatly anticipated, and this before the telescopes, as a very strange phenomenon. There is every reason to believe that the new telescope will at least further explain, and to some extent, succeed in investigating it much more thoroughly than has so far been possible.

The desire to satisfy the eagerness of the public to hear of any results obtained by the new telescope justifies the present preliminary scientific account of what has been thus far ascertained with certainty concerning the scintillations and what little has been inferred as to their motive and meaning.

In the first place they are unquestionably made by reasonable beings and not by any chance action. There are 3 visible flashes that have been spotted as signals or letters, which are of short, medium, and long duration lasting 1 ½, 3, or 5 seconds. These are formed into what must be called words of 2, 3, 4, or 5 letters each, the pause between each letter being ½ second or that between two words by 3 seconds. Thus <u>sentences</u> are formed, separated by pauses of 5 seconds or more. Lastly a group of sentences make the nightly message, which lasts about an hour. It is remarkable that the messages differ on successive nights and appear to form a <u>cycle</u>. Some of the messages certainly recur, but it is premature to say whether all

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do. The records of what has been observed at first are not as trustworthy as is desirable; different plans have been tried with varying success. Now, however, a recording apparatus has been constructed which works quite satisfactorily and gives a duplicate copy. A cylinder covered with two sheets of carbonised paper revolves by clock work on a long screw for its axis so that a pencil pressed steady on it leaves a continuous spiral trace. The pencil is, however, mounted on a spring, so that when the finger is used to press no mark is left. The observor has merely to apply his finger whenever and for so long as he sees a flash and the result is a perfect record in the language of dot, dash, & line. Except for the following questionable interpretation of a few words the whole is as yet unintelligible.

The question arises what does it all mean? It is a curious fact that the most laboured, the longest, and most extensive messages consist almost wholly of words of 3 letters. There are some 150 or 200 of these in a single message forming one continuous sentence which is nearly the whole of the message. Now there are only 27 possible varieties of words formed of 3 letters from the various possible changes that can be made of the 3 letter dot, dash, and line. Why are these 27 signals so largely used to the exclusion of all others? No reply has as yet suggested itself. A faint clue has presented itself in another direction. Each clue has what may be called <u>a heading</u> of two words. The second of these is always the same; it is a word of four letters; the first word is different in successive messages but always consists of two letters. These records show a series of these syllabic words (so far as there has been a record) formed part of an orderly series of

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permutations as follows in which the missing observations are supplied and for distinction are printed in italic letters:

ae   ab   ac   ba   bc   bd   ca   cd   cd / aa, ab, ac

      ba

It certainly looks as though they stood for numerals and that the headings should be read as "first message," "second message," "third message," etc. If this be true the accidental absence of a very imperfect record now available of the first message may be the cause why no proper decipherment of the message seems possible. In due course, the cycle the first message will be repeated in a few days after which we shall be in a better position to theorize where we are at present.

Complete Decipherment of Message I from the Earth:

It was mentioned in my last letter that imperfections in the record of what was supposed to be message no. 1 was why the meaning of the signals were in several ways undecipherable. The message has again been sent and accurately observed and recorded, and its signification is now thoroughly ascertained, and we are already in the possession of the meaning of no less than ? different words used by the Earth people.

The basis of the first message are the plain facts of simple arithmetic by means of which the names of the numerals are defined and the usual symbols of

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equal, plus, minus, multiplication, addition, and the like are fixed. Any misgiving that may remain about the interpretation of any of these will almost certainly be cleared away as the decipherment of the message proceeds.

Suppose a person first to make a flash, then after a pause to make two flashes, then three, and soon there could be little doubt that he was following the numerals in their natural order of 1, 2, 3. This with a little variation from the beginning of the first message as follows except that instead of puzzling the eye too much with dots and dashes . . .

.. — | .. | .. — . — | … — ——

…. — | — — | ….. — — — | … .. — — —   [approximation]

……. — — | . | ……. — — — | …… — — —

The — in the middle of each entry stands we may presume for "equal to" and the last word for the numeral.

This presumption is turned into certainty by the next group of sentences. Here, for the future, in order to avoid puzzling the reader with dots and dashes and lines the presumed word of phrase will be printed in italics within brackets. When the word or phrase has been established it will be printed in ordinary typewritten bracket. The second group of sentences form a new word of which is interpreted as <u>plus</u> :

1 <u>plus</u> 1 equal to 2; 2 plus 3 equal to 5; and so on for sentences. There can now be little doubt as to the corrections of the interpretations; the third group of 2

minus 1 equal to 1; 4 minus 1 equal to 3 as the numerals 1 to 9 and the figure "equal," "plus" and "minus," "division" and "multiplication" have been communicated and established during some 30 minutes of signaling. The same process explains the signal for multiplication & division, twice 2=4, twice 3=6, twice 4=8, twice 3=9. Similarly the sign for division.

Thus far the numerals 1 to 9 have alone been used. The next group of sentences gives 0 and extends the system of numeration indefinitely, by the well-known method of allowing notation familiar to us, with this exception that it is decimal and not octessimal. The octessimal is common to all communities of Mars Folk; doubtlessly because we have 8 limbs all told, our 6 limbs and 2 antennae and because it is a passable method, so in view of the great trouble of having to exchange we have continued its use. But the decimal system of notation is ludicrously bad. The number 10 being divisible only by 2 and 5 whereas 12 is divisible by 2, 3, 4, & 6. It is not to be supposed that the Earth Folk use for their own purposes such an absurd system but that they have translated their own notation into it on account of the convenience of the nine variations of words of 2 letters. It seems certain that their own system cannot be octessimal like ours, otherwise the nine variations would have exactly suited 0 or 8 numerals. *It has been jokingly suggested that the earth folk may be developed vertebrates having five digits to each hand, like the monkey, and that the decimal system may be founded on that fact, but it would be a waste of time to dwell on such fancies*. The sentences in question are these 9 + 1 = 10, 9 + 2 = 11, 9 + 3 = 12 (be), and again 10 X 2 = 20, 10 X 3 = 30, 10 X 10 = 100, 100 X 10 = 1000 (be). The word

interpreted as "be" is a succession of 5 dots; which interpretation will be confirmed directly. The concluding group of sentences explains the decimal point suggested and confirms the (be). Whereby such sentences as 7 (divided by) 2 = 3.5; 7 divided by 3 = 2.33333 (be) etc. = 2.3 (approximately) 5 (divided by) 4 = 1.25; 8 (divided by) 3 = 2.6666 (be) etc. = 2.7 (approximately). The final sentence defines symbols to half the ½ & ¾, they of 3 letters each and later on.

This concludes the first message which occupies a little less than an hour in its delivery. It is obvious that if we in Mars were in a position to flash back replies to the earth, the foundation is laid for any amount of algebraic intercommunication, but let it not be supposed for a moment that the Earth can talk to us about arithmetic and algebra. There is much more coming. I hope to make a further communication very shortly.

Decipherment of the Second Message from the Earth:

In this message certain names are established to further use in building a common language. We first give the group of sentences the names of the principal planets, namely Venus, Earth, Mars, Jupiter, & Saturn by a method that every astronomer would quickly discover. Their relative mean distances from the sun, their diameter, their time of rotation around the sun, and the time of revolution round their several axes are familiar data, as well as much else, but the Earth signals are only concerned with these. They are as follows:

(diameter of) (sun)   (diameter of) (Venus)

(diameter of) (Mars)   (diameter of) Earth

(diameter of) (Jupiter)(diameter of) (Saturn)

This sequence of numbers is sufficient to establish the words in brackets. The

names of the planets again appear in similar sentences referring to their mean

distances from sun, all in terms of the Earth's diameter as a unit. Our astronomer

of course knew the value of this in our own measures so a unit of length is

established between us and the Earth as regards the times of revolution round the

sun). The sentences run thus:

(Sun)(near distance from of) (Venus); (Sun) (mean distance from of)

(Mars) etc.

Similar sentences give a unit of time in terms of one rotation of the Earth round its

axis:

(Sun) (time of rotation round its axis) 25 Venus (time of rotation round its

axis)

This group of sentences occupies 24 minutes.

The next group in the second message occupies 25 minutes and is comparatively

uninteresting in itself, but is a necessary step in the extraordinary information that

we shall describe in the next letter and which is not yet deciphered. The delay is

not owing to any want of clue, but simply to want of time, just as a long dispatch

in cipher requires time to write out and verify. The data we are now speaking of

are the names of regular polygons of 3, 4, 5, 6, 7, 8, 9, 10, 12, & 24 sides respectively, including the words circumference, "area of," and "radius of."

The first sentence shows the well known relation of the circumference of a circle to its diameter commonly written π (π)= 3.1416.

Decipherment of the Third Message

Strange as it may seem, the Earth Folk have actually continued a plan of communication for sending drawings. The third message contains the element of the art and is an excellent drawing of Saturn with its ring. It is to these drawings that the long sentences refer which consist of words of 3 letters. There are 27 different combinations of the letters but of these the first 24 are alone used, the final 3 being omitted. The 24 are used to specify lines parallel and equal to those of a regular polygon of 24 sides, or let us say in embroidery, which is parallel to those sides.