Introduction
The Victorian Automata/Automatism Schema

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In a paper given to the Metaphysical Society in 1875, John Ruskin satirized the ubiquitous use of the language of automatism in that decade, carrying the joke to extravagant lengths.[1] He begins by predicting what will be "the first automatic impulse of all our automatic friends here present" in response to his talk, and then moves on to poke fun at physicalist accounts of mentality, particularly theories that ground morality in biology. Bandying about a term from thermodynamics, he mocks the idea that "this automatic development of solar caloric in scientific minds must be grounded on an automatic sensation of injustice."[2] In the same year, in *Deucalion*, again challenging naturalist theories, he nostalgically pronounces that in the old days, "if we heard anyone saying clearly absurd things, – as, for instance, that human creatures were automata – we used to say that they were out of their 'senses,' and were talking non-'sense'."[3] Ruskin's spoof-cum-diatribe makes vivid the pervasiveness of discussions of automatism and automata in the culture, although in his critique he was, not uncharacteristically, swimming against the tide.

The language of automatism and representations of the automaton were common in Victorian culture, taking on varied forms and moving across multiple sites. Conceptions of automata and automatism provided an expansive framework for expressing diverse ideas and values. Automata raised troubling questions about human intelligence and the boundaries between technology and biology, but they also charmed and entertained crowds. Industrial "automata" in factories outproduced the human body, and reduced human workers to agentless automata. Automata were said to escape the fallibility of the human senses; some writers, like Étienne-Jules Marey, claimed that they deliver graphically an objective, universal language that "could be called the language of the phenomena themselves, so superior is it to all other modes of expression."[4] Automatism diminished humans, denying their exceptionalism.

Automatism dethroned consciousness. But automatism promised, as well, the transcendence of the human body and mind. Automatist mental states were thought to permit access to higher planes of reality and to expanded mental powers. Automatism was credited with intellectual and creative achievements impossible for the conscious mind. Writing in the journal *Mind* on political philosophy in 1899, Bernard Bosanquet declares "social automatisms" to be "the condition of social progress," an interpretation that would later be opposed by Marxist thinkers like Antonio Gramsci and Louis Althusser.[5] For Bosanquet, that "extension of the private mind, which is a consolidation of it with the social fabric" and "receives the *imprimatur* of the State" is "essential to cooperative existence" (168). Together the image of the automaton and the discourse of automatism were capacious, ubiquitous, and multivalent. They were debated and affirmed. They conveyed limitations and dissolved them. They expressed fears. They delivered fantasies.

This collection explores automata – both mechanical and human – and the pervasive use of the language and symbolism of automatism across disciplines, discourses, and sites in the Victorian period (broadly construed to include the United States and Europe). "Automaton" means both humans who are – or at least behave like – machines and mechanisms that appear to be human. "Automatism" is used to signify similarly divergent concepts, things that are self-moving and self-determining but also things that are mechanized and lack spontaneity.[6] These varying and even contradictory uses of the words point to some of the central concerns that circulate around ideas of automata and automatism, questions about the efficacy of consciousness and volition, the limits of agency, the boundaries between the organic and the mechanical, and what it is to be human in a scientific and industrial age.

Such questions and preoccupations did not, of course, arise for the first time in the nineteenth century. Automata simulating living creatures had for centuries figured in scientific inquiry and provoked philosophical questions. Theories of human mechanism were deliberated, most notoriously in La Mettrie's human-machine (*L'homme machine,* 1747). This volume asks what is distinctive about the cultural uses and meanings of automata and automatism in the Victorian period. How did the specific developments of the period inflect those long-standing questions about the relationships between humans and machines? What new conceptions of the human did nineteenth-century theories of automatism produce? What social, technological, scientific, philosophical, political, and aesthetic

shifts did automata and their representation generate? How were automata and automatism recruited in constructions of race? How does Victorian thought on automata continue to shape current understandings of mind, agency, and mechanism? These questions have particular resonance today as well, when those issues have melded with our current preoccupation with robotics and artificial intelligence (AI).

That constellation of ideas clustering around automata and automatism became a significant organizing structure of knowledge in the nineteenth century. Historian Kurt Danziger's construal of the concept of "generative schemas" as "networks of categories that make possible the linguistic expression of what are held to be observed or hypothetical facts" is helpful for thinking about the workings of the automata/automatism framework in the period.[7] Generative schemas, as Danziger explains the concept, are general metaphorical frameworks expressed across public discourses. These "underlying metaphorical systems have *generative* properties," Danziger writes, and are transferred across domains. "[T]hose who share them are in a position to emphasize different sets of implications, any of which could be suggested by the original metaphorical schema."[8] What I call the automata/automatism schema constitutes in the Victorian period just such an organizing and productive framework, a network of ideas and analogical reasonings that bring together and generate overlapping, sometimes opposing, concepts, ideas, objects, and interpretations, moving across psychology, medicine, science, sociology, economics, politics, and literary and popular culture.

The remainder of this introduction examines some key examples of the Victorian automata/automatism schema and introduces the contributions to the volume. In demonstrating the significance of this schema to Victorian culture, the essays contemplate a variety of material sites – the courtroom, the home, and the theatre. They enter into the laboratory with its newly invented recording and inscription devices. They reflect on automatism as a legal defense, as a conduit to occult knowledge, and as a method for aesthetic creation. They draw out connections to industrialism and labor and to race theory. They engage with scientific developments: evolutionary theory, thermodynamics, brain science, and physiological psychology. They consider the beginnings of AI, attempts at mechanisms that would replicate human intelligence and mentality. Together the essays demonstrate that the automatist/automata schema informed the Victorian worldview, producing perceptions and constructing realities.

I The Human Automata

a Automatism

The word "automatism" appears pervasively in writing at the end of the nineteenth century, although the word was of fairly new coinage at the start of the Victorian period.[9] Psychophysiology made "automatism" an essential concept in explaining behavior, and by the end of the period it had become everyday psychological language. The new psychology produced a transformed conception of humans, understanding them as part of a complex causal system. The belief that a great deal of human behavior is determined by automatic or unconscious processes was accepted and discussed widely in both specialist and popular forums.[10] Reflex action became an established physiological fact by the first part of the nineteenth century, and Marshall Hall's theory of spinal cord reflexes was extended to reflex actions of the brain.[11] Experimental research on reflexes confirmed a separation between sensation and consciousness. Thomas Laycock made the case that brain reflexes function "automatically and mechanically, without the intervention of any sensation, feeling, thought, volition, or act of conscious mind whatever."[12] Automatic functions, sensorimotor responses, made what had been earlier understood as conscious mental processes into purely mechanical ones.

The prominent psychologist W. B. Carpenter coined the phrase "unconscious cerebration'" in the fourth edition of his *Human Physiology* (1852) to describe reflex and other modifications of thought that are outside of conscious awareness. In *Principles of Mental Physiology* (1874), Carpenter writes: "a large part of our Intellectual activity … is essentially *automatic*, and may be described in Physiological language as the *reflex action of the Cerebrum*."[13] Reasoning, complex cognition, and creativity can all occur as automatic reflex action. If the dominant split in thinking about the human had been physical versus mental, or body versus soul, a new organizing division entered the discussion: conscious/volitional versus automatic.

Some who acknowledged the importance of automatic brain functions nevertheless held tenaciously to an account of a conscious directing will. Although Carpenter accepts that automatisms – unconscious cerebration – result in complex behaviors, such as problem-solving or the composition of poetry and symphonies, he insists, here in an 1875 lecture entitled "Is Man an Automaton?," that automatic functions are "directed and controlled by the will; – the Ego willing the result, and leaving it to the automaton to work it out."[14] Carpenter acknowledges the role of

automatism, but places it in service of a determining self. Over time, he argues, what were once volitionally directed behaviors become automatic "habits"; but again for Carpenter the will guides those automatisms, at least in a healthy mind.

Many agreed with Carpenter that nervous reflexes play a predominant role even in creative activity. E. S. Dallas's *The Gay Science* (1866) proposed that all creative work is produced unconsciously. Oliver Wendell Holmes asserted: "The creative act is not voluntary at all, but automatic."[15] Robert Louis Stevenson famously attributed the story of *Dr Jekyll and Mr Hyde* (1886) to his metaphorical "brownies" who work outside of his awareness. But others opposed the idea that creative works, regarded as the highest human achievements, could be produced without a directing consciousness. Linda Austin's chapter in this volume situates the reception of Anthony Trollope's work in a prominent line of criticism resistant to the role of automatism in creativity.[16] A version of that view is evident in Max Nordau's contention that genius overpowers automatisms, thereby preserving the spontaneity of conscious thought. "Even the highest centers are not purely human as long as their perfection does not reach beyond automatism," he writes.[17] Austin shows how criticism from Trollope's time into the twentieth century adhered to a model of conscious intention in creativity, and demoted Trollope's writing because of his mechanized writing habits.

The concept of automatism was used by the new psychology in diverse ways. As experimental psychology was established, research on automatic processes of mind moved into physiology laboratories, where precision instruments registered responses and involuntary actions. In early psychiatry, automatisms were connected to insanity and understood as pathological or animal-like behavior, a resurgence of lower and earlier developed functions of the brain. Evolutionary models of mind reserved volition, rationality, and consciousness for what was deemed the further evolved brain, contending that automatisms were more dominant in nonwhite races, women, and the lower classes than in white European men.

The theory of human automatism that best captured the Victorian imagination was Thomas Huxley's conscious automatism. Huxley argued, to great notoriety at the 1874 meeting of the British Association of Science, that humans are automata. According to Huxley, an inefficacious consciousness takes itself to be in control, when in reality it merely accompanies the automatic, unconscious production of behavior. That is, all human behavior is automatic. In explaining his theory, Huxley draws explicitly on the history of the production of mechanical automata. He invokes the

admired eighteenth-century automata maker Vaucanson – who remained an often-mentioned touchstone of achievement in the Victorian period for his complex mechanisms – discussing a soldier with neurological damage, who apparently performs complex actions with no conscious awareness of his doings. Is the soldier, Huxley asks, "in the condition of one of Vaucauson's [*sic*] automata – a senseless mechanism worked by molecular changes in his nervous system"?[18]

Huxley's polemical presentation of human automatism was debated extensively for the remainder of the century. My chapter in this volume examines the uptake of the conscious automaton debate in the broader culture, considering the implications of the view for thinking about consciousness and literature. In Chapter 6, Tyson Stolte demonstrates the influence of theories of human automatism on James Thomson's thought and his portrayal of agentless characters in a deterministic world in the poem "The City of Dreadful Night" (1874). Stolte argues that Thomson's departure is that he does not allow his characters even the illusion of the efficaciousness of consciousness. Yet, Stolte shows, Thomson's readers were able to interpret that poem as expressing a view closer to Carpenter's directing will than to Huxley's conscious automatism. George Levine, in his contribution, shows that Darwin's theories have been taken by many, including his contemporary Samuel Butler, to entail the Huxleyan view that people are conscious automata and that intelligence and intention play no roles in a mechanistic natural world. Levine demonstrates that instead aspects of Darwin's writing undercut a thoroughgoing automatism and a world emptied of mind and volition.

b Volition, the Law, and Hypnotism

A persistent note in Victorian writing is that automatist theories radically diminish the role of volition in human action, and in so doing give rise to anxieties about moral, religious, and legal responsibility.[19] If behavior is determined, nonvolitional, and automatic, then it seems that individuals cannot rightly be held responsible for their actions. Discourses of automatism shaped ideas of criminal responsibility and influenced legal proceedings and rulings, as Roger Smith and Joel Peter Eigen have demonstrated in important monographs.[20] Courtroom defenses and verdicts had recourse to the new defense that criminal acts had been performed by perpetrators in unconscious, automatist mental states, such as while sleepwalking. Roger Smith's contribution to this volume shows that noted criminal trials involving automatism from the 1850s on worked as public

theater and helped crystallize the terms of the more abstract philosophical debates on automatism in the 1870s. Smith argues that the ostensibly descriptive language of automatisms imported moral and emotional, that is, evaluative meanings, even while questions regarding automatism and volition worked to shift attention away from the social conditions that, in fact, led to crime.

Even at the start of the Victorian period, mesmerism and, in 1843, James Braid's more scientifically accepted hypnotism (physiologically produced trance states), had established the workings of automatisms in human action. A person (often understood as weak-willed) succumbed to the mesmerizer's control or performed actions while in an alternative mental state. Discussions of mesmerism also raised concerns about the role of volition in action. Could a mesmerist control the actions of a person, rendering them a machine without awareness or moral sense, a human automaton? The idea of the mesmerized or hypnotized human subject continued to figure in public discussion and literary productions throughout the century, with concerns raised regarding the possibility of automatized subjects driven by the will of the hypnotizer. Popular literature obsessively produced stories of criminal acts performed in a hypnotic state, and of woman rendered automata, perhaps most famously in George du Maurier's *Trilby* (1894). Arthur Conan Doyle exploits that scenario in his 1887 novella *The Parasite*, where his scientist narrator explains that his fiancé had "been reduced to a condition of automatism…. A person at a distance had worked her as an engineer on the shore might guide a Brennan torpedo."[21] Doyle imagines that a human could be guided like a remote-controlled weapon, her "nervous mechanism" externally controlled by the will of another. Worries about hypnotic suggestion in crime were not restricted to fiction, but played a role in both medicine and criminal cases at the end of the century.[22] A somewhat subtler, but conceptually related idea appears in George Gissing's late-century fiction, as in *The Nether World* (1889), where characters are said to be "driven automaton-like by forces they neither understood nor could resist."[23] For Gissing, the force is no longer externalized in someone's will, but is instead environmental – social – and perhaps hereditary; the environment rather than another agent compels the crime. Shuhita Bhattacharjee's chapter in this volume examines the depiction of the mesmerized person in Richard Marsh's little-studied popular fiction beyond *The Beetle* (1897), arguing that Marsh employs the figure of a female or impoverished subject rendered an agentless automaton to make manifest social and legal injustices and power imbalances.

c *Automatism in Occultism and Spiritualism*

Theories of automatism were rejected by some not only because they threatened beliefs about human agency, but also because they diminished human exceptionalism. Automatism made the mental a part of the natural world and put humans on a continuum with animals and, for a few commentators, even machines. Those who resisted what they regarded as a reductive materialist view sought to reassert the reality of the soul and mental capacities that went beyond what naturalist science would accept. Outside of orthodox religion, spiritualist and occultist movements presented evidence of communicating spirits and an unseen realm that could in some respects be known by the human mind. Psychologists such as Carpenter and Morton Prince, on the other hand, drew on theories of automatism to debunk claims of communication with the dead and other psychical phenomena. They explained the phenomena by appeals to unconscious cerebration, the power of suggestion, hallucination, or mental pathologies.

But theories of automatism were increasingly adopted by those who sought to establish the reality of extraordinary mental powers or to provide evidence of the continuation of a nonphysical self after death.[24] Spiritualist mediums were said to enter into automatist states in which they were able to contact the dead or access alternative planes of reality. The medium's body (often a woman's) in an automatized trance could deliver spirit communications.[25] Automatic writing, widely discussed late in the century in medical and psychological journals, was declared by some to be evidence of contact with another world. For Frederic Myers at the end of the century, "automatisms" became a central category of explanation of extraordinary mental phenomenon. Automatisms for Myers permit access to subliminal or secondary consciousnesses. He describes these as "*nunciative*," that is, message-bearing, automatisms.[26] Nunciative automatisms may deliver "supranormal" knowledge coming from sources outside the person, but more often they are "messages communicated from one stratum to another stratum of the same personality" (524). Myers's automatisms return control to "the 'self' which supplies the initiating power" (523), a self that resides outside of normal consciousness yet is not pathological. Aren Roukema's chapter in this volume explores themes of psychic power and mind control in the context of scientific racism. Roukema examines popular occultist fiction that depicts psychic automatisms in ways that challenge Victorian evolutionary science's racial hierarchies that position white European

men at the top of the evolutionary ladder. The works Roukema analyzes instead situate psychical superiority and advanced mental power in nonwhite characters.

d Automatism, Race, and Scientific Racism

As Roukema's chapter shows, proponents of race science exploited evolutionary theory to argue that less evolved – that is, nonwhite – brains were dominated by unconscious, instinctual, and automatic functions. That nonwhite people are automaton-like and lack agency became a pernicious leitmotif in the writing. Long Bui has shown in his *Asians as Automata* that Chinese laborers in the nineteenth century were denied personhood and demoted to labor machines: "Asians act and behave like numbed automata bereft of deep feeling, spontaneous thought, and human consciousness."[27] Those ideas recur frequently in British travel writing in the period. The anonymous writer of a piece on Hong Kong, for example, writes that "reason and physiological knowledge fail in explaining the constitution of the Chinaman, and you can scarcely help wondering whether he is part of the organic creation at all, but not rather some marvelous automaton cunningly devised by Providence for the special benefit of the European."[28] The racist Eurocentrism is so extreme as to read like satire, in its claims for white ownership of reason, scientific knowledge, God's partiality, and even biological matter.

Similar strands of scientific racism are embedded in much of the psychological research in the period. Meade Bache, in a paper on "Reaction Time with Reference to Race" (1895) in *The Psychological Review*, argues with convoluted logic that it can be demonstrated that "the negro is, in the truest sense, a race inferior" because of his superiority in "the quickness of his automatic movements." He continues: "The negro is, in brief, more of an automaton than the white man is."[29] As Chris Dingwall's chapter in this volume shows, such self-interested constructions permitted white people to understand themselves as being in sole possession of rationality, as autonomous and self-determining, while representing Black people in opposing terms as automatic and externally controlled. Examining developments in the United States following the abolition of slavery, Dingwall traces the character of Topsy from Harriet Beecher Stowe's *Uncle Tom's Cabin*'s representation of the slave girl as mechanized human to the subsequent factory production of Topsy dolls, arguing that the cultural uses of Topsy point to the "racist iconography" of automata in the nineteenth century.

II Mechanical Automata

a Race and Mechanical Automata

That same racist iconography is on display in Victorian mechanical automata, both in exhibitions and as commodities. A succession of orientalist automata, with "exotic" names such as Hajeb and Ajeeb, reproduced Wolfgang von Kempelen's famous eighteenth-century automaton chess player, the Turk. Ajeeb, described as a mystical "Moorish figure," was another sham mechanical chess player (like Maelzel's Chess Player analyzed by Poe). Ajeeb was exhibited at the Royal Polytechnic Institute in 1868 and displayed at London's Crystal Palace into the 1870s, before being toured across Europe in the following decade.[30] Contemporary articles raised the possibility of occult or mesmeric explanations for the automaton's skills, reinforcing cultural narratives regarding the irrationality of the "East."[31]

Mechanical Black and Asian automata were widely available as collectible items in the later decades of the century. In his discussion of the gender of automata, M. Norton Wise has briefly linked the increase in production of Black automata to evolutionary theories that asserted the greater automatism of the nonwhite mind, as well as the female mind.[32] Louis Chude-Sokei, in *The Sound of Culture,* examines the connection of Black bodies to laboring machines in the United States: "In the antebellum period the relationship[s] between blacks and machines were so established that there were a great many 'automaton "Negroes"' produced in America."[33] In Chapter 2, Edward Jones-Imhotep and Alexander Offord observe that the many Black automata created in the nineteenth century carry out distinctly nontechnological activities: fruit-selling, banjo-playing, smoking, and singing. Jones-Imhotep and Offord question why historical research has not paid greater attention to the pervasiveness of Black automata, and contend that turning to discourses of scientific racism to explain the pervasive production of Black automata is to replicate the white gaze. Instead, they argue, Black automata should be understood as racist objects, constructed to create and sustain a myth that Black people and technology are not compatible.

b Thought Problems, Spectacles, Exhibitions, and Commodities

Jean-Claude Beaune, in an influential article on the history of automata, argues that mechanical "automata represent the dream, the ideal form, the utopia of the machine."[34] Automata are alluring because they appear