Introduction
The Nineteenth-Century Debate over Human Automatisms

The ineluctable tendency of all repeated actions, however intellectual or artistic, to become automatic was a commonplace observation of nineteenth-century mental science. The physiological and often experimental "new psychology" of the century concentrated on such automatic actions and, in doing so, acknowledged life in human beings, not just lower animals, without significant or any cerebral involvement. This acknowledgment laid the foundation for the new materialisms of the late twentieth century that would further deprivilege human life and set it on a continuum with nonhuman and, in some cases, nonliving processes. From 1870 to 1911, the period covered by this book, the topic of automatic functions was not confined to scientific and philosophic circles. The idea of animating mechanisms as the fundamental, generating force of living organic beings infiltrated almost every aspect of literary and artistic culture, sometimes well before or independent of its articulation in mentalist or physiological terms. *Automatism and Creative Acts* traces the command of neuromotor operations over areas of productive and aesthetic behavior that involve cognition, memory, and emotion. The documents covered in the next five chapters – which include treatises, novels, an autobiography, a libretto, travel essays, and institutional reports – all function as semantic recoveries of the physical and physiological automatisms that constitute the definitive artistry of photography and ballet and that offer explanatory models for less formalized creative activities, such as professional writing and aesthetic judgment.

The new psychology was controversial, and its presence in the fine and imaginative arts, as well as in aesthetics, was considered especially so. Because automatisms were negatively correlated with a Cartesian idea of humanness based on thinking, willing, and feeling, it was the task of those who spoke for arts and aesthetics in the nineteenth century to reaffirm the mind's domain over these operations during creative moments. Their theories and descriptions obviously had no isomorphic connection with taking

a photograph, dancing, even, at times, writing – all of which are generating processes involving systemic and often unconscious actions. Undaunted, they worked retroactively – defending the artistic value of their productions by translating unconscious acts of creating into conscious ones. For this reason, they usually represented the rear guard in current philosophical and scientific debates and, as Adrian Rifkin has discerned, depended on "formulations" from art history "rich in their inertia and unresponsiveness to the new."[1] *Automatism and Creative Acts* analyzes their strategies of resistance to the new psychology from the decentered public discourse in which it already had an insidious presence. I begin with an examination of the repeated exercise of individual thought described by John Stuart Mill and then consider the role of aesthetic categories in automating displays of individual taste. From there I move on to explore the collective and organized automatisms constituting arts or disciplines that during this time were either moribund (ballet), emerging (art photography), or in the midst of bifurcation (professional and creative or literary writing). Each of these fields of activity enfolded particular controversies over automatisms, and each staked its status as art, in the honorific sense, on denying or mitigating the physiological orientation of the most contentious of the new psychological theories. Rather than viewing ballet, photography, and professional writing as distinct methods or cultural formations subject to separate influences, I treat them all as creative processes whose legitimacy depended on their being represented as intentional and attentive acts, when all the while a significant part of their operations evaded mental control.

If the debates over human automatism had a central arena, it was in the philosophical exchanges between those committed to mentalism – the idea that the mind is a separate sphere – and the experimental physiologists who often called themselves materialists because, like their seventeenth- and eighteenth-century predecessors, they viewed matter as the fundament and generator of consciousness. Their detractors often termed them "mechanists" or "reductionists" for approaching the body as a composite of separately functioning parts. This was not uniformly true; and indeed, *materialism* and *mechanism* had long been interchangeable and often misleading terms. As Daniel Cottom has remarked, the "overreliance on [the term] materialism" in the eighteenth and early nineteenth centuries overlooked "how the representation of machines . . . was no less a matter of soulful bodily organs than of artificial tools and works."[2] Setting organic against mechanistic models obscured, moreover, an important vein of late eighteenth-century vitalism that, Peter Hanns Reill has argued, evaded the mind–body problem by "positing the existence in living matter of active or

self-activating forces."[3] *Automatism and Creative Acts* sets representations of the physiological, or mechanistic, unconscious in action amid this seemingly perpetual philosophical division, which has been sustained to this day as much by confusion as by entrenched ideas of the soul and Cartesian assumptions about the exceptionality of human beings.

The concept of "automatism" has proved an especially unsettling link in the tottery separations of mind and body, human and machine, not only in the age of the new psychology, but in the current era of neuroscience and biosystems. In the nineteenth century, the idea of "automatism" was chiefly represented by its particular manifestation, the "automaton": the word has always captured a paradox, designating both a "mechanism . . . that . . . appears to move spontaneously" and a "living being whose actions are purely involuntary or mechanical." In the latter sense, it often appears in the texts under study here as a slur for the producer whose hitherto creative and expressive work has degenerated through repetition, fatigue, and inattention. In *On Liberty*, Mill equates the "automatons in human form" who might at some future times execute various manual tasks with "machinery." In the same passage, he famously invokes the opposition between the "machine" and "human nature."[4] But the machine was not just a trusty metaphor enlisted by mentalists to deride and separate the regular and automatic functions of the body from the sphere of mind. It was a broad technological category with its own history, a history that encompassed various objects and, more important, different kinds of operations. As technologies such as steam and electricity brought popular attention to the idea of a completely automated machine, "automatism" became, in the words of Pierre Naville, "a *general operational principle*," not just a "*rare technological combination*" (his emphasis), and one, therefore, applicable to human behavior. The particular conception of an automatic, energy-powered machine spread from industry into the sciences.[5] As several studies have recently shown, the body began to be viewed as an electric machine or motor; operations previously likened to machines were, as a result, reconceived as thermodynamic.[6] The automatisms of the operating human being under the new psychology followed, in particular, the "same concept of process that rules in machine technology," observed Thorstein Veblen, looking back in 1937 at the trajectory of nineteenth-century industrialization. Speculation about the physiological unconscious, he elaborates, borrowed from machine technology the theory of "cumulative sequence" to understand how an operation shifts from the repetition of cause and effect, sources and objectives, to "an unfolding process" that alters the relation between these factors.[7] Of course, as Laura Otis observes, "a

cultural channel for transmitting metaphors . . . always involves movement in both directions." In her most recent intervention, N. Katherine Hayles has named this interpenetration of human and technical systems "cognitive assemblages." Both adaptive and recursive, these systems extend what she calls the "cognitive nonconscious" beyond human and animal life.[8]

And so, I shall show that the idea of cumulative sequence did not just pass from industry to physiology. It was bound up with an abstract and capacious conception of latency that informed views not just of the human neuromotor system but of a nonhuman technology, that of photochemical development. This shared concept of molecular motility led to a further discursive breakdown of the opposition between human and technological operation: for if physiology could function mechanically (as a kind of raw information system, Richard Menke has observed), then photochemistry could possess an unconscious.[9] To countenance, in short, human automatisms was to allow the possibility of creative mechanisms. The rubrics and practices of the arts and aesthetics, the focus of this book, illustrate this mutual interchange. Secondary automatisms, or habits acquired through repetition, follow the industrial principle of cumulative sequence when they "unfold" into the collective, recognizable, and established actions that define individual artistry in specific fields of practice. As I shall relate, the new discourse of art photography, the institutionalization of professional writing, and the parodies of balletic movement all reflected the same attention to physiological automatisms that Alexander Bain, William James, and Thomas Henry Huxley – among others – were exploring in the second half of the century.

Moreover, as certain arts, independently of science, acquired their distinctive patterns of movement and cumulative sequences, they themselves exhibited the power of epigenesis, a Kantian term (modeled on the theory of Johann Friedrich Blumenbach) for the "formative impulse" in matter and with it the capacity to change through movement.[10] As Stanley Cavell has written, "the creation of a medium [is] the creation of an automatism," so "in mastering a tradition one masters a range of automatisms upon which the tradition maintains itself."[11] These "automatisms" exist, he implies, independent of their operators; at the same time, they constitute any discipline's collective memory. Cavell is writing of film in particular, but his use of the word is instructive, for in this formal and psychological sense, all arts comprise "automatisms": patterns of human thought and movement that with repetition become defining practices, preexisting and independent of any single human agent. When they alter through use, they affirm the link Veblen found between the operating principle of

the machine and of the physiological body. They too are not just human automatisms but creative mechanisms.

Reinstating hybridity to the nineteenth-century presentation of the mind–body problem, *Automatism and Creative Acts* thus reflects a "pre-disciplinary" world where, as Jay Clayton has observed, "the professional characteristics of science as a discipline had not yet been codified."[12] In its attention to the physical and physiological movements of the body during creative activity, my book joins cultural histories by Clayton, Jessica Riskin, Otis, and Menke, all of which orient the texts they study toward mechanistic rather than organic models of human behavior while exposing the open borders between the two. And in mining the creative possibilities of automatisms and revealing parallel rhetorical tensions in science and aesthetics, *Automatism and Creative Acts* contributes to the flourishing field of cognitive cultural studies, which often returns to earlier texts armed with the latest findings from neuroscientific research.

I remain wary of the disembodied view of the mind that neuroscience often presents, however. Theory of mind (ToM), for example, often views consciousness as mental and fully volitional, passing over the issue that was of such importance in the nineteenth century: the place of embodiment in cognition. In neuroscience, as in the so-called mentalist arm of Victorian psychology, the "body is reduced to its representation in the somatosensory cortex," according to Raymond W. Gibbs. It is "considered important only to the extent that it provides the raw sensory input required for cognitive computations."[13] Instead, I turn to more systemic views that obscure the differences between bodies and machines. Critical interventions enabled by the early work of Veblen though the mid-twentieth-century writings of Silvan Tomkins on affect and the current theories of Hayles on degrees of cognition help me integrate human creative processes as Victorians described them with contemporary views of mechanical and physiological systems. To elicit process from these descriptions, I often rely on critical tools fashioned specifically for *embodied action*, a current term generally indicating the body's sensorimotor system as the generating force of cognition. *Kinesthesia*, for example, has proved a particularly valuable instrument for historians of dance, the fine arts, and literature. The coinage of the term *kinesthesia* in 1880 coincided, in fact, with much of the activity I discuss. Susan Leigh Foster defines it as a field of research "establishing the existence of nerve sensors in the muscles and joints that provide awareness of the body's positions and movements." Such "kinesic intelligence," writes Guillemette Bolens, enables us to read immeasurable aspects of movement.[14]

Yet as I recover, through kinesic intelligence, the physiological motion that defining documents of the arts and of individual genius do not articulate, I encounter contrary tendencies – to mystify forms of creativity and genius, for instance, or to represent them as the designs of intentional minds. Indeed, notwithstanding their integration of technological and physiological automatisms, the nineteenth-century fine arts – those bastions of individual genius – were prestigious fields of resistance to principles of kinesic operation. In them, the idea of embodied cognition was often considered an oxymoron. The tendency of writers on ballet, photography, and poetry to credit the controlling power of a thinking soul for all expressive or mimetic acts kept vitalism safely separate from the body and linked to a quasi or overtly religious form of idealism. In this light, the parts of this book that coax systemic operations from defiant declarations of intentional creation effectively reverse the hard work of those Victorians who – to borrow a phrase from Hayles – "restag[ed]" the "cognitive nonconscious" in "the theater of consciousness."[15] Finally, then, *Automatism and Creative Acts* does not rehistoricize the nineteenth-century arts in ways that undermine the technophobia for which many Victorians were notorious. On the contrary, it confirms the chronic antipathy that Clayton, Menke, and others among my contemporaries have been eager to obscure. The Victorian era may not yet have developed codified practices for branches of psychology (as I relate below), but it was not quite an "age unmarked by current disciplinary conflicts between the sciences and the humanities," as Tamara Ketabgian has remarked; for the controversy over human automatisms was the seedbed of those conflicts.[16] With my debt to these insightful critical studies always in mind, I have tried to recapture the conversations among artists and scientists when living being and moving machine were still nominally oppositional but functionally collapsing. These exchanges reveal how a tenacious theoretical divide between mentalists and physiologists became the structural weakness of sciences devoted to the mind–brain problem. And they explain why theorists of the arts often began and ended their treatises and manuals by declaring the special status of the signature intellectual and artistic acts in their fields.

The theoretical instability evident in many of the texts examined in the chapters ahead was reflected by the fluid state of research into the unconscious at the time, which was mirrored in turn by the direction of individual careers. As Jenny Bourne Taylor has convincingly shown, nineteenth-century thinkers recognized several gradations of consciousness.[17] Among the new psychologists of Britain, William Benjamin Carpenter gradually accepted the expanded role of neurosensory functions in

mental behavior. Bain maintained the existence of inherent faculties of mind but used behavioral criteria to assess the mental dimension; his theories adhere to the axioms of mental science while adopting the methods of physiology.[18] In its general orientation toward the unconscious, moreover, the new psychology differed from the continental version: Théodüle Ribot's *psychologie nouvelle* was modeled on Associationism, the preeminent mind-based psychology of the century. The operating picture of the mind under Associationism varied from a hydrodynamic model of fluid channels to a network of vibrating strings, but it consistently depicted an independently functioning realm, nonetheless. Although associationists recognized that some ideas, because of their numbers, were probably more conscious than others, they did not pursue different terminology for them or place them in a subterranean part of the organic territory they had mapped. And although in theory associationist principles included feelings, as Thomas Brown emphasized in the 1820s, in practice they almost always covered ideas only.[19] As a result, the common phrase for Associationism, the "association of ideas," further secured the mind from the dispersed *loci* of the senses, from affects, and from other visceral actions. Ribot invoked this British tradition, hoping for a scientific approach to the mind independent of philosophy.[20] His own ideas were not exclusively mentalist, however, as will become apparent later in this Introduction. From the beginning, he admitted systemic notions of the unconscious, as did Jean-Martin Charcot in his experiments with hypnotic suggestion.

Nevertheless, unlike the British strain of psychology, which remained anchored in experimental physiology and thus betrayed its ties (in the public view) to radicalism and materialism, the *psychologie nouvelle* was quickly "mentalized" on the continent during the 1870s and 1880s. Wilhelm Wundt's Psychological Institute at the University of Leipzig housed a laboratory intended solely for the study of consciousness and subjective experience. In Paris, Sigmund Freud and Josef Breuer turned their attention from psychic stimuli and physiological excitation to the mind. Freud eventually pinned his analyses on the theory of intrapsychic conflicts, and Breuer, who had gained recognition for showing that breathing was an automatic nervous process, began to specialize in memory therapy or the "talking cure" while treating "Anna O." Breuer's shift in particular, from physiology to psychology, encapsulates the dramatic swerve in an emerging discipline that (under Ribot and Charcot) seemed to have assumed that mind was an epiphenomenon of brain but that came to concentrate exclusively on mental conflict and the suppression of ideas. Instead of connections through vibrations, Freud perceived tension, but the idea of the mind

as an associative space survived in his picture of it. So "after his own failed experiments with mind–brain integration," Freud "considered the quest a kind of madness, and urged his followers to adopt psychic determinism, in which the contribution from the brain on psychic states was considered unknowable," relates George Makari in his historical digests of psychoanalysis and mentalism. Having been separated from biological causes like heredity, the Freudian mind occupied a disciplinary limbo "between literature and neuropathology." It was effectively metaphysical, "loosed from the material world."[21] Thus depth psychology returned to the enclosed mental world of Associationism by way of *psychologie nouvelle*. It became the authoritative reference for recognizing and analyzing extraordinary psychic states such as trauma and trance and an enriching critical tool in the humanities, where it provided spatial metaphors for the unconscious.

The presence of the repressed unconscious in the fiction of the period has been well analyzed – most recently by Jill Galvan, Anne Stiles, and Jill Matus. Although both, following Taylor, have refrained from imposing a developed Freudian paradigm on the Victorians, I find it useful to keep in mind the success with which this discourse has permeated discussions of the arts, aesthetics, and artistic processes throughout most of the twentieth century; but I also want to remember the tangled germination I have just outlined.[22] For *two* categories of the unconscious emerged from the new psychology and the *psychologie nouvelle*, each to anchor a different orientation in the study of human thought, personality, and emotion. While the humanities readily embraced psychoanalysis, studies of a physiological unconscious – part of what Hayles calls the cognitive nonconscious – remained peripheral to or absent from discussions of creativity. Unlike the hidden or repressed unconscious, this peripheral and physiological unconscious could not be mapped or compartmentalized as a concealed, second self. Fluid – neither eidetic in the mental sense of consciousness nor oneiric in the sense of an irrational unconscious – it resisted representation through secondary revision (or the talking cure) in therapeutic discourses. Until recently, it evaded the interest of literary critics for the same reason. It was the unconscious of quotidian behavior. It fell, therefore, under the purview of behaviorism and sciences that downplayed or obscured differences between human, animal, and particularly mechanical action. Its various aspects are only now being explored. Reactions to the dominance of the Freudian discourse by Gilles Deleuze and Félix Guattari in the 1970s and 1980s eventually granted physiological studies a place in cultural criticism through biophilosophy. Continuing explorations of posthuman and transhuman systems have further occluded the binaries – of mind and body, of

conscious and unconscious – that structured much Victorian promotion of the arts, inflamed contemporary mental scientists, and helped determine the disciplinary divides in psychology that have governed thought for more than a century.

The debate in the second half of the nineteenth century over whether human beings were automata – defined and dominated by neurophysiological operations beyond basic autonomic ones like breathing – lies, then, at the beginning of a theoretical trajectory that only in recent decades has altered interventions in the humanities. This debate was diffuse and ongoing, even among those who numbered themselves in the scientific community. I outline its chief controversies below, some of which remain unresolved.

The Debate

Even though the late years of the automata debates in the 1880s coincide with the partnership of Freud and Breuer in treating hysteria, as well as the founding of the Psychological Institute by Wundt, the disagreement over whether human beings were automata chiefly occupied British correspondents, who imported concepts from industrialized machine technology rather than from the nascent continental fields of depth psychology and psychoanalysis. The reductionists in particular looked to physics and chemistry for their models of human behavior. In his account of the disagreements roiling Victorian psychology, Rick Rylance has noted that the nineteenth-century physiological position was particularly decentered because, with the exception of Bain, representatives of this field did not hold university appointments.[23] Rather than in lecture halls or laboratories, they argued with each other in the pages of generalist periodicals like *The Nineteenth Century* and *The Westminster Review*. Their discussions in these venues made the new psychology, even among philosophers and scientists, a discursive rather than an institutionally sanctioned field of interest. In addition to Carpenter and Huxley, the chief spokespersons for the physiological faction of the new psychology active between 1850 and the end of the century included George Henry Lewes, Herbert Spencer, John Tyndall, and Henry Maudsley in Britain; and to a lesser extent Ribot in France. Often they disagreed over the borders between neurological and mental function, but even in their liveliest arguments they assailed the belief that soul or mind and body were ontologically distinct, that the former lay beyond the reaches of scientific inquiry, and that the will was the central faculty of the mind. In this way,

they continued the materialist strain of the philosophical tradition, which appropriated the earlier ideas of David Hartley and Georg Prochaska, as well as parts of the treatises of John Locke and René Descartes that could support a theory of systemic operation based in physiology.

The new psychology not only unseated the mind as control center of the organism; it defined life through evidence of movement without mental consciousness. The basic unit of this movement was the reflex. Automatism had been connected to reflex action ever since Descartes conceived of the body as a machine that could, without mental agency, instantly withdraw its foot from fire. So when in his short history of the new psychology for readers of *The Contemporary Review* in 1875, Carpenter called reflex action, "the mechanism of automatic action" and the "cardinal principle" of the new psychology, he was not presenting a new idea. He was, however, surveying the recent "more scientific mode of thought" that had extended the domain of the sensory-motor reflex over complex actions involving degrees of sensation and awareness.[24] The modern study of the reflex began, he related, with Sir Charles Bell's description in 1821 of the "nervous circle," the working term for the nerve-center, the sensory or centripetal nerve, and the motor nerve running to the muscle. From a general acceptance of the so-called Bell-Magendie law, research advanced with "the general recognition of the independent endowments of the Spinal Cord" by Marshall Hall in 1833 [relying, perhaps, too heavily, on Prochaska].[25] Having established the existence of a nerve force operating without consciousness, physiologists then identified two forms of nerve tissue, the so-called white and grey matter. White fibers conducted nerve force, and the gray or ganglionic cells lined the spinal cord in which nerve force originated.

This distinction inspired a popular analogy between the neurophysiological system and the electric telegraph, which Gilbert Child, in his summary of physiological psychology for *The Westminster Review* of 1868, repeated: "the grey matter resembles the battery at the station, and produces force of a particular kind and degree, [while] the white fibres are precisely analogous to the telegraph wires which propagate the force generated by the battery to a distance, but produce no force themselves."[26] The distinction in function between fibrous conductors and ganglionic centers of force offered a broad analogy rather than a valid observation, Carpenter noted in his essay, but the general principle remained sound, he believed. His own experiments on insects confirmed that "every separate ganglion of the ventral cord . . . is an independent centre of reflexion." "Many . . . actions performed by the agency of the spinal cord alone . . . seem so purposive as to make it difficult for those to regard them in any other light" but "to recognize the large