CONSERVATION OF ENERGY, INDIVIDUAL AGENCY, AND GOTHIC TERROR IN RICHARD MARSH'S *THE BEETLE*, OR, WHAT'S SCARIER THAN AN ANCIENT, EVIL, SHAPE-SHIFTING BUG?

By Anna Maria Jones

I went into my laboratory to plan murder – legalised murder – on the biggest scale it ever has been planned. I was on the track of a weapon which would make war not only an affair of a single campaign, but of a single half-hour. It would not want an army to work it either. Once let an individual, or two or three at most, in possession of my weapon-that-was-to-be, get within a mile or so of even the largest body of disciplined troops that ever yet a nation put into the field, and – pouf! – in about the time it takes you to say that they would be all dead men.

-Marsh, The Beetle, chapter 12

THERE IS A FAMILIAR CRITICAL NARRATIVE about the fin de siècle, into which gothic fiction fits very neatly. It is the story of the gradual decay of Victorian values, especially their faith in progress and in the empire. The self-satisfied (middle-class) builders of empire were superseded by the doubters and decadents. As Patrick Brantlinger writes, "After the mid-Victorian years the British found it increasingly difficult to think of themselves as inevitably progressive; they began worrying instead about the degeneration of their institutions, their culture, their racial 'stock'" (230). And this late-Victorian anomie expressed itself in the move away from realism and toward romance, decadence, naturalism, and especially gothic horror. No wonder, then, that the 1880s and 1890s saw a surge of gothic fiction paranoiacally concerned with the disintegration of identity into bestiality (Stevenson's *The Strange Case of Dr. Jekyll and Mr. Hyde*, 1886), the loss of British identity through overpowering foreign influence (du Maurier's *Trilby*, 1894), the vulnerability of the empire to monstrous and predatory sexualities (Stoker's *Dracula*, 1897), the death of humanity itself in the twilight of everything (Orwell's *The Time Machine*, 1895). The Victorian Gothic, thus, may be read as an index of its culture's anxieties, especially its repressed, displaced, disavowed fears and

desires.² But this narrative tends to overlook the Victorians' concerns with the terrifying possibilities of progress, energy, and self-assertion. In this essay I consider two oppositions that shape critical discussions of the fin-de-siècle Gothic – horror and terror, and entropy and energy – and I argue that critics' exploration of the Victorians' seeming preoccupation with the horrors of entropic decline has obscured that culture's persistent anxiety about the terrors of energy. I examine mid- to late-Victorian accounts of human energy in relation to the first law of thermodynamics – the conservation of energy – in both scientific and social discourses, and then I turn to Richard Marsh's 1897 gothic novel *The Beetle* as an illustration of my point: the conservation of energy might have been at least as scary as entropy to the Victorians.

Ostensibly The Beetle tells a story very similar to Bram Stoker's Dracula. Both the novels describe the efforts of resourceful modern gentlemen to combat ancient, supernatural foes, save their imperiled womenfolk, and thus defend England's purity from monstrous pollution. In both novels, the technological tools of modernity are arrayed against the occult magic of Eastern enemies who infiltrate London and prey on innocent British women. In The Beetle, as in Dracula, the monster represents "a powerfully exemplary grotesque embodiment of late-Victorian anxieties" (Wolfreys, Introduction 19).³ Although critical discussions of *The Beetle* have been relatively few, most have read the novel in this way. As Rhys Garnett writes: "In both Beetle-priest and Dracula . . . the sexual fear and guilt of the late-Victorian patriarchy can find habitation and a name for desires distanced in extreme forms of Otherness" (44). 4 Yet, as I argue, The Beetle's treatment of British civilization is much more troubling than its representation of degenerate monstrosity. As the epigraph above – narrated by Sydney Atherton, the novel's entrepreneurial man of science – suggests, civilized England is capable of unleashing forces far more terrifying than one monster on a quest for personal vengeance. The Beetle is instructive because it leads with the horror of monstrous disintegration while suspense builds slowly around the terrors of productive human energy. I am using terror and horror here in the traditional sense outlined most famously by Robert Hume in "Gothic versus Romantic: A Revaluation of the Gothic Novel." Referring back to Ann Radcliffe's distinction between the two terms, Hume writes that "terror-Gothic" is dependent on "suspense or dread" produced in the reader by "vague but unsettling possibilities." Conversely, "horror-Gothic" novels "attack [the reader] frontally with events that shock and disturb him. Rather than elaborating possibilities which never materialize, they heap a succession of horrors upon the reader" (285). As I will show, *The Beetle* articulates a fear of the unpredictable consequences of productive, self-willed energy that supersedes the horror produced by the monster's predations.

Relatively speaking, much more attention has been given to the influence of evolutionary theory on Victorian culture than to that of thermodynamics; however, scholars who have focused particularly on nineteenth-century "energy physics" rightly point out the Victorians' pervasive use of the first and second laws of thermodynamics to explain social and even psychological phenomena. The first law of thermodynamics describes the conservation of energy: within a closed system, energy is neither created nor destroyed. The second law states that all closed systems are always in a state of increasing entropy – in other words, that everything tends from order to disorder. Both laws had been articulated, at least in partial form, by the 1830s (some argue even earlier), and by the late 1850s in Britain they were becoming widely circulated in both scientific and popular discourses. The first law was lauded by such luminaries as Herbert Spencer, who called it "the ultimate universal truth" in his 1862 *First*

Principles (1:193).⁶ And, although the laws were still being contested up through the 1870s, when Balfour Stewart published *The Conservation of Energy* in the International Scientific Series in 1873, he presented his work as an "elementary treatise," summarizing and explaining established laws to a general audience. It is not surprising, therefore, that discussions of individual labor during these decades should invoke thermodynamic metaphors, and vice versa. As Ted Underwood points out, "Thermodynamic science leapt to prominence so rapidly because Victorian scientists, lecturers, and journalists believed that it ratified a productivist conception of industry they already cherished" (182).

As critics characterize the Victorians' understanding of the laws, however, the first law is optimistic, and the second law is pessimistic. Whereas the first law ensures constancy and permanence, the second law seems to retract that promise. Tina Choi notes, for example, that "[the first law of] thermodynamics seemed to offer authors and readers of popular journals such as Household Words and Blackwood's Edinburgh Magazine the reassuring promise of a world of eternal returns, in which causes and effects would always be contained" (302-03). In contrast, the second law "seemed to function... as an afterthought, a sober reminder and an admonition to counterbalance conservation's hasty idealism. And in the resulting dissonance between the two, many longed for a return to the prelapsarian ideal that the first law seemed to offer" (306). Barri Gold argues similarly: "The first law . . . seems to promise that nothing can be lost. It operates in affective opposition to the second law, which, in threatening the perpetual and irreversible increase of entropy, suggests that everything must be lost." The second law, moreover, "comes to dominate a Victorian mind-set increasingly concerned with dissipation and degradation" (452).8 The "promise" of the conservation of energy is the promise of work, of harnessing potential energy and converting it into "energy of motion." The "sober reminder" of the second law is the inevitable end, the decay of the system, of the empire, the death of everything.

As is clear from these accounts, the dichotomy between productive (good) energy and dissipative (bad) entropy has a chronological logic that links it to the degeneration theories of the late-nineteenth century. But the energy/entropy split also operated to define social norms throughout the period. In particular, it defined the boundaries of normative masculine behavior. Critics like James Eli Adams, Martin Danahay, and Andrew Dowling - all of whom explore the anxieties, fears, and desires attendant upon Victorian masculine subjectivity – describe the Victorian ideal of masculinity as a combination of abundant energy and masterly self-control. Adams argues that "the energetic self-discipline that distinguished manly 'character' offered not only economic utility but also a claim to new forms of status and privilege within an increasingly secular and industrialized society" (5). Danahay claims similarly that "male Victorian identity was modeled on the Protestant work ethic" which privileges "self-discipline, self-denial and hard work," and, thus, "the compulsion to labor was... made an integral part of normative masculinity" (7). Conversely, threats to masculinity were those things that enervated, dissipated energy, eroded self-control. In other words, positive, industrious models of masculinity were defined by that which they were not. As Dowling writes: "The hegemonic truth about manliness in the nineteenth century was established through metaphors of control, reserve, and discipline, that were placed in opposition to images of chaos, excess, and disorder" (13).

Unsurprisingly, the chronological and normative converge in Victorian studies to tell the story of a (particularly masculine) crisis of subjectivity at the fin de siècle. As Kelly Hurley argues: "This entropic plotline, whereby bodies regress and complexity yields to either increasing indifferentiation or chaotic disorder...structures Gothic narratives of degeneration" (197). The goal of these narratives, Hurley argues, "is to accomplish a kind of purification of human identity," wherein the degenerate (and often feminized) threat of the "abhuman" is countered by manly heroism: "The man should, by contrast, appear as a fully human subject, powerful and self-sufficient, capable of transcending the animal body.... Degenerate times require a heroic version of masculinity" ("British Gothic Fiction" 197, 202–03). In other words, as the Victorians lost faith in their empire, their moral and physical superiority, and the progress of their civilization, they told themselves fewer stories about Tom Brown and David Copperfield (bildungsroman), instead dwelling anxiously on stories of Dracula and Svengali (gothic horror), and inventing fantastic heroes to counter the threats of their degenerate monsters. ¹⁰

Yet, this entropic focus leads to a lopsided view of Victorian literature and culture in a couple of ways. On the one hand, by reading the Victorians' move from energy to entropy chronologically, we create, in Choi's words, a "prelapsarian" Victorian age in which faith in liberal ideals had not yet been undermined by knowledge of decay and decline. We look for fears of entropy and degeneracy at the end of the century, and we find them – they are, indeed, there for the finding. But attention to the Victorians' fin-de-siècle angst shouldn't encourage us to ignore their other, more seasoned anxieties. For one thing, as gothic texts throughout the century demonstrate, degenerate, demonic, and mesmerizing villains were by no means absent in the years between the 1790s and the 1890s. One thinks, for example, of James Hogg's Private Memoirs and Confessions of a Justified Sinner (1824), Charles Dickens's The Mystery of Edwin Drood (1870), and Sheridan Le Fanu's Carmilla (1872), to name a few. And, on the other hand, by assuming that "energy" is always the positive term in the energy/entropy binary, we miss the persistent and widespread ambivalence that the Victorians expressed about their own energetic ideals. As Herbert Sussman makes clear, it was not just the dissipation of masculine energy and the loss of agency that threatened the Victorians, both at the end of the century and in the preceding decades:

The point of problematization for manhood, or what the Victorian middle-class termed "manliness" was situated in developing what Foucault calls "practices of the self" (2: 13) for properly regulating or managing this internal, natural energy, "technologies of the self" (2:11) that were consistently identified with the technologies of an industrializing society obsessed with harnessing the natural energy of water and fire. (10–11)

The anxiety for the Victorians, according to Sussman, arose in the notion of masculinity as an "unstable equilibrium of barely controlled energy that may collapse back into the inchoate flood or fire that limns the innate energy of maleness," which demanded constant self-discipline to control (13).

Sussman's language does suggest a kind of entropic tendency in masculine energy, with ordered, self-disciplined energy constantly threatening to devolve into "inchoate" energy. But his account also points to another problem: if the work of masculinity is maintaining an "unstable equilibrium," then the balance may shift in any number of directions. It is not simply that manliness may degenerate into a dissipated or undisciplined version of itself, but that beyond a certain amount of energetic, industrious manhood one might have too much of a good thing. As Sussman notes: "While psychic discipline defines what the

Victorians term manliness, if such discipline becomes too rigorous the extreme constraint of male desire will distort the male psyche and deform the very energy that powers and empowers men" (3). To this I would add a further complication: as many Victorian novels, including *The Beetle*, show, the discipline that enables productive, industrious masculinity simultaneously permits pathological, vengeful, and destructive agency. In other words, it is not just that self-discipline can overshoot the mark and produce pathological instead of successful subjects, but that excessive self-possession itself is a successful "technology of the self." In the following section I trace some examples of the Victorians' ambivalence about productive, disciplined energy. As these examples show, *The Beetle* participates in a centuries-long discourse, critiquing the ideals of liberal individualism, not just because individual agency is too friable, too easily influenced or thwarted, but because it can also be too powerful, too persistent.

"No Man's Acts Die Utterly"

Man is a fruit formed and ripened by the culture of all the foregoing centuries; and the living generation continues the magnetic current of action and example destined to bind the remotest past with the most distant future. No man's acts die utterly; and though his body may resolve into dust and air, his good or his bad deeds will still be bringing forth fruit after their kind, and influencing future generations for all time to come. It is in this momentous and solemn fact that the great peril and responsibility of human existence lies.

—Smiles, Self-Help, chapter 12

IT IS TRUE THAT TEXTS like Thomas Carlyle's *On Heroes, Hero-Worship and the Heroic in History* (1841), Thomas Hughes's *Tom Brown's Schooldays* (1857), and Samuel Smiles's *Self-Help* (1859) present rosy pictures of the power of energy and self-discipline to produce great effects on an individual as well as a national scale, so much so that they have become almost caricatures of a self-satisfied Victorian celebration of industrious, masculine energy in the service of empire.

11 *Tom Brown's Schooldays*, for example, lovingly describes the antics of "active, bold fellows" at Rugby as they gain "character and manliness," through the judicious application of "good sound thrashings" (211; bk.1, ch. 9). The education of Tom Brown is of paramount importance because, as Hughes remarks to his readers, Tom is part of "the great army of Browns, who are scattered over the whole empire on which the sun never sets, and whose general diffusion I take to be the chief cause of that empire's stability" (5; bk. 1, ch. 1). The novel charts Tom's progress as he learns to take his place in this "great army" of empire builders. *Self-Help* offers a similarly direct correspondence between individual energy and national greatness:

All nations have been made what they are by the thinking and the working of many generations of men...[who] have contributed towards the grand result, one generation building upon another's labours, and carrying them forward to still higher stages.... The spirit of self-help, as exhibited in the energetic action of individuals, has in all times been a marked feature in the English character, and furnishes the true measure of our power as a nation. $(19-20; \text{ch. 1})^{12}$

For Smiles, Englishness is a personal character trait, and the nation is the glorious sum of its individuals; to exert one's self in self-cultivation, then, is to participate in nation-cultivation. One might find similarly positive representations of masculine energy in novels throughout the nineteenth century: John Thornton winning the hearts of headstrong women and obstreperous workers alike in Elizabeth Gaskell's *North and South* (1855); Robert Audley growing manly and resolute through the pursuit of dark secrets in Mary Braddon's *Lady Audley's Secret* (1862); Sir Henry Curtis, Captain Goode, and Alan Quatermain triumphing over natural and supernatural enemies in H. Rider Haggard's *King Solomon's Mines* (1885); Jonathan Harker and company valiantly defending England from the predations of vampires in Bram Stoker's *Dracula*.

Yet, in many Victorian texts one finds much more uneasiness about masculine energy. In some novels industry, will, and self-discipline are aligned not with the heroes, but with the villains. For example, Wilkie Collins's Basil (1852, 1862), Mary Elizabeth Braddon's The Trail of the Serpent (1860), and Sheridan Le Fanu's Checkmate (1870) all feature plots in which the villains are possessed of an overabundance of agency, self-control, and industriousness, while the flawed heroes are more or less passive, unable to defend themselves (or anyone else) from the villains' machinations. Moreover, in each of these sensation novels, the villains, in addition to being evil, vengeful plotters, are also excellent men of business and productive contributors to their socioeconomic spheres. Nor are they brought to justice through any agency of the heroes; rather, all three villains dispatch themselves. I would argue that the recurrence of plots like these bespeaks a mistrust of "energy" such that the agency necessary to combat the self-disciplined and industrious villains would make the heroes themselves too problematic to be comfortably contained by the novel's resolution. 13 And, other novels demonstrate the destructive potential of misdirected energy. Edward Bulwer-Lytton's Eugene Aram (1832), Charles Dickens's Hard Times (1854), Wilkie Collins's Heart and Science (1883), and H. G. Wells's The Island of Doctor Moreau (1896) all feature characters who, like Victor Frankenstein, energetically pursue professional goals and/or scientific knowledge, without regard for human (or animal) suffering. For example, Heart and Science's villain Ovid Vere is a workaholic surgeon and vivisectionist whom the narrator describes in the opening lines of the novel as "an active man, devoted heart and soul to his profession," not so much malicious as misguided and (increasingly) unbalanced (45; ch. 1). Collins explains him thusly in the preface: "I trace, in one of my characters, the result of the habitual practice of cruelty (no matter under what pretence) in fatally deteriorating the nature of man" (38).14

Matthew Arnold explains his mistrust of this sort of "devoted" energy in similar, if less sensational, terms in *Culture and Anarchy* (1869):

We show, as a nation, laudable energy and persistence in walking according to the best light we have, but are not quite careful enough, perhaps, to see that our light be not darkness.... We may regard this energy driving at practice, this paramount sense of the obligation of duty, self-control, and work, this earnestness in going manfully with the best light we have, as one force. And we may regard the intelligence driving at those ideas which are, after all, the basis of right practice, the ardent sense for all the new and changing combinations of them which man's development brings with it, the indomitable impulse to know and adjust them perfectly, as another force. And these two forces we may regard as in some sense rivals, – rivals not by the necessity of their own nature, but as exhibited in man and his history, – and rivals dividing the empire of the world between them. (126)¹⁵

Here as elsewhere, Arnold presents an urgent plea for thoughtful deliberation, for intellectual critique and theorizing that does not lead directly to praxis. Arnold acknowledges the merits of "energy driving at practice," but he worries that this industriousness, without appropriate checks placed on it, may lead to evil results. In short, he urges his readers *not* to act, lest those actions – however much they may be impelled by the "this paramount sense of the obligation of duty, self-control, and work, this earnestness in going manfully with the best light we have" – have dire and unforeseen consequences.

Indeed, even Smiles's Self-Help – that prototypical Victorian paean to the middle-class ideals of autonomy, industriousness, self-culture, and energy – registers distrust of the energy it celebrates. Self-Help promises that one can be one's own master, and in harnessing one's energy, whatever the innate abilities of that self might be, one can achieve almost anything: "It is not eminent talent that is required to ensure success in any pursuit, so much as purpose, – not merely the power to achieve, but the will to labour energetically and perseveringly. Hence energy of will may be defined to be the very central power of character in a man – in a word, it is the Man himself" (190-91; ch. 8). Self-mastery offers nearly limitless possibilities for achievement: "To think we are able, is almost to be so - to determine upon attainment is frequently attainment itself. Thus, earnest resolution has often seemed to have about it almost a savour of omnipotence" (194; ch. 8). Yet, as the quote with which I began this section suggests, human agency has both far-reaching and incalculable effects that can "bind the remotest past with the most distant future." This conception of the intricate and permanent connections among all aspects of the natural world and the world of human action creates a conservation of energy problem for Smiles that renders the influence of human actions disturbingly powerful and permanent, and our ability to predict that influence partial at best:

Thus, every act we do or word we utter, as well as every act we witness or word we hear, carries with it an influence which extends over, and gives a colour, not only to the whole of our future life, but makes itself felt upon the whole frame of society. We may not, indeed cannot, possibly, trace the influence working itself into action in its various ramifications amongst our children, our friends, or associates; yet there it is assuredly working on for ever. (300; ch. 12)

On the one hand, the individual, as Smiles describes in the Introduction to the First Edition, is capable of tremendous achievement through "diligent self-culture, self-discipline, and self-control – and, above all, on that honest and upright performance of individual duty, which is the glory of manly character" (7). And, on the other hand, individuals are deeply interdependent yet highly susceptible to the actions of others.¹⁶

This conception of the permanence and incalculability of the effects of human energy links Victorian anxieties about individual agency to the first law of thermodynamics. Balfour Stewart makes the connection between human energy and thermodynamics explicit in *The Conservation of Energy*. Explaining how potential energy can be converted to kinetic energy, or as he calls it, "energy of motion," Stewart asks his readers to consider a watermill and a windmill. Whereas the watermill has the ability to harness the energy of the stream, the windmill can only work if the wind happens to blow. "The former," Stewart tells his readers, "has all the independence of a rich man; the latter, all the obsequiousness of a poor one. If we pursue the analogy a step further, we shall see that the great capitalist, or the man who

has acquired a lofty position, is respected because he has the disposal of a great quantity of energy" (26; ch. 2). 18 Stewart uses similar human analogies throughout *The Conservation of Energy*. In illustrating that "heat [is] a species of motion" – that is to say, that kinetic energy can be converted to (or dispersed in) heat – Stewart presents a story of passengers "whirling along at a great speed" in a train. When the train suddenly wrecks, the passengers are "all in a violent state of excitement," colliding into and being repelled by one another. "Now, we have only to substitute particles for persons, in order to obtain an idea of what takes place when percussion is converted into heat," he concludes (39–40; ch. 2). And, when he introduces the unsettling idea of entropy, the eventuality that "the mechanical energy of the universe will be more and more transformed into universally diffused heat, until the universe will no longer be a fit abode for living beings," he explains that the sun "is in the position of a man whose expenditure exceeds his income. He is living upon his capital, and is destined to share the fate of all who act in a similar manner" (142, 152; ch. 5).

Interestingly, this last analogy translates the horrifying prospect of the sun's death into a morality tale – the sun is like a villain from a Trollope novel who will get his eventual just desserts. Or, as Greg Myers remarks, "Here we have the improbable meeting of William Thomson and Mr. Micawber" (326). ¹⁹ But, just as in a Dickens or a Trollope novel dozens of chapters and incidents precede the inevitable and explicable conclusion, so too, the human world will contain incalculably numerous, and potentially disastrous, possibilities before its end. Stewart describes two kinds of "energy structures" or machines: those, like pocket watches, steam engines, and solar systems that are predictable and regular, and those, like cocked rifles and humans that are "eminently characterized by their *incalculability*" (159). As he explains, with recourse to yet another social analogy:

To make our meaning clear, let us suppose that two sportsmen go out hunting together, each with a good rifle and a good pocket chronometer. After a hard day's work, the one turns to his companion and says: – "It is now six o'clock by my watch; we had better rest ourselves," upon which the other looks at his watch, and he would be very much surprised and exceedingly indignant with the maker, if he did not find it six o'clock also. Their chronometers are evidently in the same state, and have been doing the same thing; but what about their rifles? Given the condition of the one rifle, is it possible by any refinement of calculation to deduce that of the other? We feel at once that the bare supposition is ridiculous. (159; ch. 6)

In fact, as Stewart says, it is not the rifle itself that is incalculable but the sportsman who holds it because "a human being . . . is in truth a machine of a delicacy that is practically infinite, the condition or motions of which we are utterly unable to predict." He concludes: "In truth, is there not a transparent absurdity in the very thought that a man may become able to calculate his own movements, or even those of his fellow?" (160–61; ch. 6). *The Conservation of Energy*, thus, ends on a note of ambivalence. The end of all things, while horrifying, is predictable – a calculable outcome. Conversely, the exchanges of energy through human agency in the interim – the movements of those delicate human machines and their effects on fellow creatures and the world – are terrifyingly incalculable. What then is worse: entropy or energy, the known horror or the unknown terror?²⁰ As I argue in the following section, *The Beetle* answers this question: the unknown terror is worse. In the novel the problem of the incalculability of individual agency creates a suspenseful "terror-Gothic" plot that runs counter to and mitigates its "horror-Gothic" monster plot.

"The Life and Death of Nations"

Many ingenious minds are found labouring in the throes of invention, until at length the master mind, the strong practical man, steps forward, and straightway delivers them of their ideas, applies the principle successfully, and the thing is done.

—Smiles, Self-Help, chapter 2

What a sublime thought to think that in the hollow of your own hand lies the life and death of nations – and it was almost in mine.

—Marsh, *The Beetle*, chapter 12

THE BEETLE, LIKE DRACULA, IS TOLD BY multiple first-person narrators, each with a more or less incomplete knowledge of events. It is divided into four books – the first and third, the novel's shortest sections, are narrated by the Beetle's victims: Robert Holt, an out-of-work clerk, and Marjorie Lindon, a plucky New Woman heroine and universal love interest. The second and fourth books are narrated by the novel's two most active and masterful characters: Sydney Atherton and confidential agent, Augustus Champnell, respectively. The novel begins with the character most affected by the Beetle, its only fatality, and it ends with the character least affected by it – one, indeed, who does not encounter the monster face to face at all. This early and intense focus on the monster, followed by its gradual disappearance from the narrative, serves to frontload the novel's horror. Once the reader is confronted by the horror of the Beetle, it remains a horrifying presence throughout the novel, of course, but its shock value might be said to dissipate throughout the subsequent chapters (with brief flares of intensity in Book III when Marjorie describes its assault on her and when her narrative ends abortively with her capture), ending, finally, in the literal dissipation of the monster's destructive potential. Conversely, the novel reveals Sydney Atherton's unpredictable energy and destructive potential throughout multiple scenes and, ultimately, hints at a much greater destruction in the future beyond the story's conclusion. If The Beetle balances gothic horror and terror, by its conclusion, that balance has shifted toward terror and away from horror.

The novel opens with Robert Holt, who, having been turned away from a workhouse and facing a night of starvation and exposure to the elements, breaks into a seemingly vacant house and there falls into the clutches of the Beetle. Within the first ten pages, Holt finds himself incapacitated "What he willed that I should say, I said. Just that, and nothing more. For the time I was no longer a man; my manhood was merged in his. I was, in the extremest sense, an example of passive obedience" (54; ch. 3). Powerless, Holt is assaulted not only mentally but also physically by the monster:

My only covering was unceremoniously thrown off me, so that I lay there in my nakedness. Fingers prodded me then and there, as if I had been some beast ready for the butcher's stall.... Fingers were pressed into my cheeks, they were thrust into my mouth, they touched my staring eyes, shut my eyelids, then opened them again, and – horror of horrors! – the blubber lips were pressed to mine – the soul of something evil entered into me in the guise of a kiss. (57; ch. 4)

This scene is arguably the most horrific in the novel – certainly it offers the most detailed and explicit description of what the Beetle does to people.

The rest of Book I, however, shows that there may be more questions about the human agents in the novel than there are about the Beetle. As the Beetle's minion, Holt is forced to break into Paul Lessingham's house (wearing only a cape) and steal a packet of letters. This crime, he imagines, will cause him to run afoul of a man whose "impenetrability is proverbial" and who possesses "invulnerable presence of mind," and who is, moreover, his political hero (75; ch. 7).²¹ But when Holt utters the words "THE BEETLE" to Lessingham, per his instructions from the monster, he witnesses a profoundly disturbing transformation in Lessingham: "I was filled with a most discomforting qualm as I gazed at the frightened figure in front of me, and realized that it was that of the great Paul Lessingham, the god of my political idolatry" (76; ch. 7). Indeed, when Holt returns helplessly to his captor, having successfully stolen Lessingham's letters, the Beetle taunts him with Lessingham's fall: "You saw Paul Lessingham, - well? - the great Paul Lessingham! - Was he, then, so great?" And, Holt is forced to admit, the Beetle is right about his idol: "The picture which, in my mental gallery, I had hung in the place of honour, seemed, to say the least, to have become a trifle smudged" (85; ch. 9). As Victoria Margree notes, Lessingham "is introduced as the hope for the future, including the security of the nation, and the cure for existent social ills.... But this representation will be consistently undercut by a fear that being statesmanlike may be simply a matter of performance" (70).

The final scene in Book I, after Holt returns from the burglary, combines swooning horror with perplexed disquiet. Holt is so overcome with horror elicited by the Beetle that he loses consciousness at the close of the chapter, but he is not so overcome that he cannot register his disappointment and confusion at Paul Lessingham's mysterious behavior. Likewise, the reader now knows quite a bit about the Beetle – that it can shift its shape, that it can mesmerize its victims, that it is motivated by perverse sexual appetites, jealousy, and revenge – but we know very little about Paul Lessingham. We know that it is horrible for Holt to be under the Beetle's sway, but is Lessingham's influence over his idolatrous followers salutary or pernicious?

We know even less about the stranger who accosts Holt, who collars him "with a grasp of steel" as he escapes Lessingham's house. This stranger, like the Beetle, makes fun of Holt "with a curious, half mocking smile," and applauds whatever attack on Lessingham's person or property he may have committed:

"Is that the way to come slithering down the Apostle's pillar? – Is it simple burglary, or simpler murder? – Tell me the glad tidings that you've killed St. Paul, and I'll let you go." Whether he was mad or not I cannot say, – there was some excuse for thinking so. He did not look mad, though his words and actions alike were strange. "Although you have confined yourself to gentle felony, shall I not shower blessings on the head of him who has been robbing Paul? – Away with you!" (83; ch. 8)

This mysterious, murderous, possibly mad stranger is, of course, Sydney Atherton, as we discover in the beginning of the next chapter, which begins Book II. But, the troubling "incalculability" of Sydney's motives and actions is, I would suggest, increased rather than dissipated with the reader's knowledge of his identity. The end of Book I from Holt's perspective and the beginning of Book II, which switches to Atherton's first-person narration, overlap and describe the same chance meeting outside Lessingham's house. And this has the effect of highlighting Atherton's agency in contradistinction to Holt's

and Lessingham's losses of self-control. But the overlap also serves to set up another comparison: between Atherton and the Beetle, both of whom are motivated by a hatred and jealousy of Paul Lessingham, both of whom exert control over the other characters in the book. This congruence is by no means momentary – rather, it gathers strength throughout Book II.

Whether or not Atherton is joking about wishing Lessingham dead – and I would argue he is not joking – he is in the street in front of Lessingham's house because, having just discovered that the woman he loves, Marjorie Lindon, is secretly engaged to the "Apostle," and, as he says:

Like the idiot I was, I went out into the middle of the street, and stood awhile in the mud to curse him and his house, – on the whole, when one considers that that is the kind of man I can be, it is, perhaps, not surprising that Marjorie disdained me. "May your following," I cried, – and it is an absolute fact that the words were shouted! – "both in the House and out of it, no longer regard you as a leader! May your party follow after other gods! May your political aspirations wither, and your speeches be listened to by empty benches! May the Speaker persistently and strenuously refuse to allow you to catch his eye, and, at the next election, may your constituency reject you!" (98; ch. 11)

In the midst of this violent outburst, Atherton is interrupted by his encounter with Holt leaving the house, with the results we have seen at the end of Book I. Interestingly, Sydney offers an assessment of himself: "this is the kind of man I can be," and that man is worthy of Marjorie's disdain. And, as he reflects on the wisdom of letting Holt escape, he tells himself: "You're a nice type of an ideal citizen!" (99; ch. 11). In fact, that is the very issue at the heart of *The Beetle*. Sydney Atherton is, indeed, a type of ideal citizen: an energetic, productive, and industrious citizen, a "strong practical man" who puts scientific ideas into practice and makes things happen. Book II comprises twelve chapters that stage multiple encounters between Sydney and various characters, most against the backdrop of his "Wizard's cave," each one revealing what kind of man he can be. In the course of twelve chapters, Sydney receives eight visitors to his laboratory: the Beetle (twice), Percy Woodville, Dora Grayling, Marjorie Lindon, Mr. Lindon (Marjorie's father), and Paul Lessingham (twice). Arguably, all of these show Sydney as more or less unlikable and unstable, but I want to focus on Sydney's exchanges with three visitors in particular: his double, the Beetle; his rival, Paul Lessingham; his victim, Percy Woodville, along with a very unlucky cat.

In the first exchange, the Beetle appears in Sydney's laboratory following his late night encounter outside Lessingham's house. Sydney, having dreamed that Marjorie loves him and not his rival, awakens with the knowledge that "it was the other way round – so that it was a sad awakening. An awakening to thoughts of murder." The murder that occupies his thoughts is the "legalised murder... on the biggest scale it ever has been planned" – his poison gas weapon. And, although it may be a sad awakening, within moments Sydney is exulting in the accrual of power attendant upon his new weapon: "What a sublime thought to think that in the hollow of your own hand lies the life and death of nations, – and it was almost in mine" (102; ch. 12). This sort of abrupt mental shift from lovelorn to murderous is one that Sydney makes throughout the novel. He is engaged in this murderous pursuit when the Beetle first visits his laboratory, and as their conversation reveals, they share very similar desires and powers.

When the Beetle first meets Atherton, it asks, "You, Mr Atherton, - are you also a magician?" Of course Sydney uses the scientific gadgets in his lab as "magic" to cow the superstitious Oriental, but he also seems to possess some sort of mental power akin to the Beetle's magnetism. Indeed, Atherton is the only character in the novel to resist the Beetle's mesmerism, which he attributes to the fact that "[t]he sensitive something which is found in the hypnotic subject happens...to be wholly absent" in him (104-05; ch. 12). And, given its inability to subject Sydney to its will, the Beetle instead offers him a Faustian bargain: if Sydney will only acknowledge that he wants Marjorie, then the creature will help him steal her from Lessingham. As the creature tells him: "Listen! you love her, – and he! But at a word from you he shall not have her, – never! It is I who say it, – I!" (106; ch. 12).²² The scene conflates "Oriental" mesmerism, British science, and vengeance. Sydney, shaking off the Beetle's influence, tells it: "I see you are a mesmerist. . . . And I'm a scientist. I should like. with your permission – or without it! – to try an experiment or two on you." To which, the Beetle replies: "We will try experiments together, you and I – on Paul Lessingham" (105–06). Seemingly, they are both talking about the "experiments" that answer the question: "what kinds of torment can be visited on an enemy?"

In the second exchange under discussion, Paul Lessingham visits Atherton's laboratory immediately following the Beetle's first visit. He comes to pump Sydney for information: what does he know about the Cult of Isis, and how much did he find out from Holt after the break-in? How compromised is his reputation in Atherton's eyes? Sydney, in return, tries unsuccessfully to get information from Paul. The scene balances Sydney's unpleasant preoccupation with killing and Lessingham's unsavory secrecy, presenting neither man in a particularly sympathetic light. Atherton describes his rival as "too calm; too self-contained; with the knack of looking all round him even in moments of extremist [sic] peril, – and for whatever he does he has a good excuse" (108; ch. 13). By way of an ice-breaker they talk, naturally, about Sydney's new weapon. It is an illuminating conversation:

"I never enter a place like this, where a man is matching himself with nature, to wrest from her her secrets, without feeling that I am crossing the threshold of the unknown. The last time I was in this room was just after you had taken out the final patents for your System of Telegraphy at Sea, which the Admiralty purchased, – wisely. – What is it, now?" "Death." "No? – really? – what do you mean?" "If you are a member of the next government, you will possibly learn; I may offer them the refusal of a new wrinkle in the art of murder." "I see, – a new projectile. How long is this race to continue between attack and defence?" "Until the sun grows cold." "And then?" "There'll be no defence, – nothing to defend." (109; ch. 13)

Of course, Sydney refers to the second law of thermodynamics and the fact that the solar system must eventually run out of energy; as Lessingham acknowledges: "The theory . . . is not a cheerful one" (110; ch. 13). But, the exchange reveals two other disturbing possibilities: first, Sydney "may" offer right of first refusal for his new weapon to the British government, which suggests that just as well he might not, or if he receives an unacceptable bid for his weapon from his own government, he might seek more lucrative offers from other buyers. Second, Sydney's reply to the question of how long an arms race must continue, "until the sun grows cold," reveals a grim vision of the future of humanity, finding ever more efficient

and technologically-advanced ways to murder one another, across millennia before the sun actually does go out. In other words, humanity has less to fear from the far, far distant future death of the sun than it does from the progressive death-dealing that the planet's human denizens will engage in, in the interim. Sydney himself is the embodiment of that progress and human energy.

At the end of this exchange with Lessingham, Sydney provides an interesting description of this "energy":

I was in a fever, — of unrest. Brain in a whirl! — Marjorie, Paul, Isis, beetle, mesmerism, in a delirious jumble. . . . When I am warm I grow heated, and when I am heated there is likely to be a variety show of a gaudy kind. When Paul had gone I tried to think things out, and if I had kept on trying something would have happened — so I went on the river instead. (117; ch. 13)

What Atherton means by a "variety show of a gaudy kind" is left to the reader's imagination, but one is reminded of Balfour Stewart's admonition: "is there not a transparent absurdity in the very thought that a man may become able to calculate his own movements or even those of his fellows?" Sydney himself cannot name the "something" that would result from his heated state, without the harmless outlet of rowing to dissipate the excess energy.

In fact, the novel gives us an example of Sydney's variety show in the third exchange. After watching Lessingham give a speech in Parliament and subsequently having an encounter with Marjorie and Lessingham, in which Marjorie's preference is once more brought home to him, Sydney again becomes "heated." Atherton takes his friend Percy Woodville, who is also in love with Marjorie (and despondent, therefore), "on the fly" (130; ch. 15). He drags Woodville off to a late supper where he gets him drunk, despite Percy's protests, and quizzes him about how he would feel if Marjorie loved someone else. Percy, good-naturedly replies, "He's a lucky chap, whoever he is. I'd – I'd like to tell him so.... You don't suppose that, because I love her, I shouldn't like to see her happy? – I'm not such a beast! – I'd sooner see her happy than anything else in all the world." And Atherton replies,

"I'm afraid that my philosophy is not like yours. If I loved Miss Lindon, and she loved, say, Jones, I'm afraid I shouldn't feel like that towards Jones at all." "What would you feel like?" "Murder. – Percy, you come home with me... and I'll show you one of the finest notions for committing murder on a scale of real magnificence you ever dreamed of. I should like to make use of it to show my feelings toward the supposititious Jones, – he'd know what I felt for him when once he had been introduced to it." (133; ch. 16)

Atherton takes Woodville back to his lab, by way of Lessingham's house, where he steals his cat so that he can, in one of the truly disturbing scenes in the novel, poison it as Paul Lessingham's proxy, despite Woodville's repeated pleas to "let the brute go."

Atherton's killing of the cat, his bullying of the reluctant Percy, and his patriotic industriousness overlap jarringly in the scene. As he tells Woodville, "You are about to be the witness of an experiment which, to a legislator – such as you are! – ought to be of the greatest possible interest. I am going to demonstrate, on a small scale, the action of the force which, on a large scale, I propose to employ on behalf of my native land" (135;

ch. 16). Kelly Hurley claims that in comparison to the Beetle's predations, "most of th[e] sexual rivalry and tension is fairly civilized, often even comic, involving all sorts of mix-ups and awkward situations one might find in a novel like Barchester Towers" (Gothic Body 136), but I find it hard to imagine this particular scene in a Trollope novel. Arguably, a Victorian audience might have been less shocked by Atherton's impromptu animal testing than many twenty-first-century readers; however, given the popularity and visibility of the anti-vivisection movement and of the Royal Society for the Prevention of Cruelty to Animals, which had been instrumental in passing the Drugging of Animals Act (1876) and the Cruelty to Animals Act (1876), it seems likely that many of Marsh's readers would have understood Sydney's actions as at least legally culpable if not morally reprehensible. Indeed, Sydney's killing of the cat violates at least three articles of the Cruelty to Animals Act, which was designed specifically to regulate experimentation on animals.²³ And, many readers in 1897 would, no doubt, have been familiar with such anti-vivisection novels as *Heart and Science* and The Island of Doctor Moreau and, thus, would have been prepared to connect Sydney in this scene to other mad scientists.²⁴ Moreover, the novel builds disgusted responses from other characters into the plot to suggest that we are meant to deem Atherton's behavior unacceptable.25

Atherton himself is not only oblivious to his own brutality but shockingly frank that his killing of the animal is only thwarted desire to treat the cat's (supposed) owner to the same treatment:

"Cheer up, Percy!" I clapped him on the shoulder, – almost knocking him off his seat on to the floor. "I am now going to show you that little experiment of which I was speaking! – You see that cat?" "Of course I see it! – the beast! – I wish you'd let it go!" "Why should I let it go? – Do you know whose cat that is? That cat's Paul Lessingham's." . . . "How do you know it's his?" "I don't know it is, but I believe it is, – I choose to believe it is! – I intend to believe it is! – It was outside his house, therefore it's his cat, – that's how I argue. I can't get Lessingham inside that box, so I get his cat instead." (135–36; ch. 16)

And, as another, if also unsuccessful, rival for Marjorie's affections, Percy himself falls victim to Atherton's violence, couched in playful threats as he shows his captive audience the glass balls filled with poison gas:

"Take hold of one – you say your heart is broken! – squeeze this under your nose – it wants but a gentle pressure – and in less time than no time you'll be in the land where they say there are no broken hearts." He shrunk back. "I don't know what you're talking about. – I don't want the thing. – Take it away." "Think twice, – the chance may not recur." "I tell you I don't want it." "Sure? – Consider!" "Of course I'm sure!" "Then the cat shall have it." (136)

That Atherton's demonstration would end as it does – with Sydney clumsily knocking one of his glass spheres on the floor and, thus, accidentally poisoning and almost killing Woodville – should not be surprising, particularly because, only a few days before, as he admits, he almost killed himself in a similar accident. "I had been doing some fool's trick with a couple of acids – sulphuric and cyanide of potassium – when, somehow, my hand slipped, and, before I knew it, minute portions of them combined" (102; ch. 12). It is interesting to note, also, that

Percy is only saved because the Beetle shows up in the nick of time and resuscitates him. At least when the monster does violence to people in the novel, it means to. Of all people, Sydney Atherton seems ill-suited to hold "the life and death of nations" in his ham-fisted hands.

Given The Beetle's preference for entropy over energy, the conclusion to the novel is fitting indeed. After Sydney has allowed the Beetle to capture Marjorie, and he and Paul Lessingham have enlisted the aid of Augustus Champnell to track the monster and rescue her, much of the last hundred pages of the novel recounts Lessingham's increasingly hysterical behavior, Atherton's violent outbursts, the heroes' pell-mell race across England on the Beetle's heels, their discovery of Robert Holt, dead in a lodging house, his energies exhausted by his trials before and after meeting the Beetle. This feverish action culminates, not in a confrontation between modern hero and ancient evil, but, rather, in a fortuitous train wreck. Balfour Stewart's example of the dissipation of kinetic energy into heat, thus, becomes the happy narrative resolution of Marsh's gothic novel. Having been thwarted at all turns by the Beetle, the heroes receive a stroke of good fortune when the Beetle's train crashes, killing the monster (seemingly) and leaving Marjorie alive in the wreckage, herself a wreck. This conclusion may be read as an instantiation of the novel's overarching message. Harnessed energy, forward progress, the works of technological civilization are the things to fear; the cessation of these is not to be feared. After all, the conversion of useful energy into useless heat is the only thing that saves Marjorie from a horrible fate. At the last, the heroes cannot be completely sure that the Beetle is destroyed, but the percussive end of the train wreck – coupled with the news that a giant explosion in the desert in Egypt seems to have destroyed the Cult of Isis (320–21; ch. 48) – bode well. And, as Champnell relates, the "partially burnt rags, and fragments" and "huge blotches" of smelly goo that the men find in the train carriage suggest that it really is destroyed (318; ch. 47). This may not offer quite as definitive a victory as driving a stake through a vampire's heart, but it is very reassuring.

The conclusion of *The Beetle* as it relates to Sydney Atherton fails to reassure, however. The man who exulted to hold "the life and death of nations" in his hand has married Dora Grayling, the heiress who has all along enthusiastically offered to bankroll his research. Like Stewart's "great capitalist," Atherton now "has the disposal of a great quantity of energy" (Stewart 26; ch. 2). And, as Champnell reports, Sydney is hard at work on an invention chillingly well-suited to follow his gas weapon: "He continues his career of an inventor. His investigations into the subject of aerial flight, which have brought the flying machine within the range of practical politics, are on everybody's tongue" (Marsh 321; ch. 48). And, as we now know, the unsettling possibilities which haunt Marsh's 1897 novel would become horrifying reality in the trenches in Ypres in 1915. What, indeed, is scarier than an ancient, evil, shape-shifting bug?

The Beetle, thus, looks forward presciently to the bitter disillusionment articulated in works like Wilfred Owen's "Dulce et Decorum Est," in which the reality of death by poison gas undercuts the "old Lie" of earnest labor and honorable sacrifice for one's country. ²⁶ But, as I have argued, the novel's deep distrust of its hero – his destructive desires, his ambitions, his "energy of will" – also looks back to a longer history of suspicion about individual agency and energy and the incalculable effects of human action. We have, perhaps, been too ready to ascribe to the Victorians a naïvely optimistic attachment to the ideals of "Self-Help" – "the

power of self-help, of patient purpose, resolute working, and steadfast integrity, issuing in the formation of truly noble and manly character" (Smiles 21; ch. 1) – and to read the turn from optimism to anxiety and critique as a fin-de-siècle phenomenon. But, as Samuel Smiles reminds us: "As the present is rooted in the past, and the lives and examples of our forefathers still to a great extent influence us, so are we by our daily acts contributing to form the condition and character of the future" (299; ch 12). In other words, the optimistic Victorians were very aware of the gothic terrors haunting their energetic endeavors.

University of Central Florida

NOTES

- 1. See also Greenslade, Degeneration, Culture, and the Novel, 1880–1940; Hendershot, The Animal Within: Masculinity and the Gothic; Navarette, The Shape of Fear: Horror and the Fin de Siècle Culture of Decadence; Smith, Victorian Demons: Medicine, Masculinity and the Gothic at the Fin de Siècle; Tosh, Manliness and Masculinities in Nineteenth-Century Britain: Essays on Gender, Family and Empire.
- See, for example, Hurley, The Gothic Body: Sexuality, Materialism, and Degeneration at the Fin de Siècle; Greenslade; Schmitt, Alien Nation: Nineteenth-Century Gothic Fictions and English Nationality; Haggerty, Queer Gothic. Kelly Hurley also does an admirable job summarizing these strands of criticism in her essay "British Gothic Fiction, 1885–1930."
- 3. See also Wolfreys, "The Hieroglyphic Other: *The Beetle*, London, and the Abyssal Subject," in which he replicates this argument (176).
- 4. See also Hurley, *The Gothic Body*. An earlier version of her chapter on *The Beetle* appeared as "'The Inner Chambers of All Nameless Sin': *The Beetle*, Gothic Female Sexuality, and Oriental Barbarism"; see also Margree, "'Both in Men's Clothing': Gender, Sovereignty and Insecurity in Richard Marsh's *The Beetle*."
- 5. For a comprehensive history of thermodynamics as a cultural phenomenon, see Smith, *The Science of Energy: A Cultural History of Energy Physics in Victorian Britain*; see also Myers, "Nineteenth-Century Popularizations of Thermodynamics and the Rhetoric of Social Prophecy"; Underwood, *The Work of the Sun: Literature, Science, and Political Economy, 1760–1860.*
- 6. This quote comes from the chapter "The Persistence of Relations Among Forces," added to the second edition (1867).
- 7. It is important to recognize that the popular understanding of thermodynamics was often inexact. As Ted Underwood notes, "enthusiasm for the first law coincided with a deep confusion about its content" (180).
- 8. See also Levine, Darwin and the Novelists: Patterns of Science in Victorian Fiction.
- 9. Stephen Arata claims, similarly, that the figure of the male "professional reader" emerged in numerous contexts (e.g., medicine, psychology, literature) in the fin-de-siècle as "a way of mastering troubles by coaxing meaningful pattern out of unruly experience" (4).
- 10. Regenia Gagnier has argued recently that narratives of monstrous mesmerists, like Dracula and Svengali, with the power to deprive individuals of their wills, register a decline in Victorians' faith in theories of the liberal subject at the end of the nineteenth century. As she puts it, "this tension of independence versus interdependence... constituted the anxiety of liberalism after a century of its development" (26). See also Glover, "Bram Stoker and the Crisis of the Liberal Subject"; Luckhurst, "Trance-Gothic, 1882–1897"; Winter, Mesmerized: Powers of Mind in Victorian Britain. Winter offers comprehensive account of the intersections of theories of mesmerism and political and social discourses throughout the long nineteenth century.

- 11. See, for example, Fielden, "Samuel Smiles and Self-Help"; Clausen, "How to Join the Middle Classes with the Help of Dr. Smiles and Mrs. Beeton"; Rodrick, "The Importance of Being an Earnest Improver: Class, Caste, and Self-Help in Mid-Victorian England." It should be noted that other critics have questioned this tendency to use Smiles as shorthand for complex, and sometimes contradictory, political and social views. Alexander Tyrrell remarks: "Merely to mention the name 'Samuel Smiles' has been deemed sufficient to conjure up a vision of the typical middle-class Victorian" (105).
- 12. Carlyle, though with more elevated rhetoric, makes a similar argument in the introduction to the first lecture in *On Heroes, Hero-Worship and the Heroic in History*: "For, as I take it, 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....[A]ll things that we see standing accomplished in the world are properly the outer material result, the practical realisation and embodiment, of Thoughts that dwelt in the Great Men sent into the world" (1–2; lecture 1).
- 13. Basil's nemesis, Mr. Mannion, accidentally falls to his death while taunting the helpless Basil at the edge of a cliff. Both Mr. Longcluse of *Checkmate* and Jabez North of *Trail of the Serpent* kill themselves to avoid being apprehended by the law. One might also think of villains like Mr. Carker in *Dombey and Son* (1848) and Ferdinand Lopez in *The Prime Minister* (1876) who are more or less successful business men and predatory schemers for most of their respective narratives, and who are step in front of speeding trains when their plots finally unravel (though Carker's death is represented more as divine justice than purposeful self-destruction). Or, one might include Haggard's Ayesha in *She* (1883), who is immortal, evil, and seemingly unstoppable, until she conveniently (and, as it turns out for her, ill-advisedly) steps a second time into the rolling pillar of fire which first made her immortal, and, thus, destroys herself.
- 14. Eugene Aram, an impoverished but brilliant scholar, murders someone in order to bankroll his scholarly pursuits. Mr. Gradgrind in *Hard Times* relentlessly pursues his educational system, to the detriment of his students. Both Collins's young surgeon Ovid Vere and Wells's exiled Dr. Moreau are vivisectionists whose single-minded pursuits not only lead to their own moral decline but also to the destruction of those around them.
- 15. This passage is Arnold's set-up for his discussion of Hebraism versus Hellenism in chapter four.
- 16. This notion of the persistence of force in the sphere of human action has raised interesting problems for Liberalism's autonomous subject since its birth: namely, if energy is neither created nor destroyed, and the influence of human actions extends over time forever, then one's self, arguably, can never be the source of one's actions. Indeed, this is just what William Godwin argues in An Enquiry Concerning Political Justice (1793) when he discusses the Doctrine of Necessity: "Man is in no case strictly speaking the beginner of any event or series of events that takes place in the universe, but only the vehicle through which certain causes operate, which causes, if he were supposed not to exist, would cease to exist" (168; bk. 4, ch. 6). Thomas Carlyle considers a similar question of free will in On Heroes when he questions whether belief in and attachment to others can be consonant with an individual's "private judgment" (a term he shares with Godwin). He imagines that exertion of individual will (private judgment), paradoxically, leads to "unity" with others: "I venture to assert, that the exercise of private judgment, faithfully gone about, does by no means necessarily end in selfish independence, isolation; but rather ends necessarily in the opposite of that.... A man protesting against error is on the way towards uniting himself with all men that believe in truth" (148; lecture 4). Walter Bagehot considers briefly this problem of influence and individual will in explicitly thermodynamic terms in his treatise Physics and Politics (1872): "No doubt the modern doctrine of the 'Conservation of Force,' if applied to decision, is inconsistent with free will; if you hold that force 'is never lost or gained,' you cannot hold that there is a real gain - a sort of new creation of it in free volition" (10; ch. 1).
- 17. Interestingly, the American edition of Balfour Stewart's 1873 *The Conservation of Energy, Being an Elementary Treatise on Energy and its Laws* underscored the applicability of the laws of thermodynamics to human psychology by including an appendix "treating of the vital and mental

- applications of the doctrine," with essays by Joseph Le Conte and Alexander Bain (New York: D. Appleton, 1890).
- 18. This and all subsequent references are to the 1883 British edition.
- 19. William Thomson, who later became Lord Kelvin, was one of the most prominent figures studying thermodynamics.
- 20. As Myers notes, for natural philosophers like William Thomson, entropy was, in a sense, comforting because the transitory nature of the material world was contrasted with the eternal nature of the hereafter (318).
- 21. Holt's fervent admiration of Lessingham suggests that the Beetle may not be the first mesmerist to control Holt's will: he may already have given over his will to the celebrity politician. This worry about Lessingham's mesmeric powers, echoing earlier authors like Smiles and Bagehot, is articulated repeatedly in the novel though mostly by his political and personal enemies: Marjorie's father, an arch-conservative, and Sydney Atherton, who snidely calls him "the Apostle" throughout the novel.
- 22. The Beetle offers the same bargain when it visits a second time, with the addition of requiring a handshake to seal the deal (Marsh 144; ch. 18).
- 23. We do not know if Atherton might have a license to perform experiments on animals (which he would have been required by the law to have), but in any case, he violates a general restriction, a special restriction, and an "absolute prohibition." The 30 September 1876 issue of the *Law Times* lists the salient articles as follows: "The animal must during the whole of the experiment be under the influence of some anæsthetic of sufficient power to prevent the animal feeling pain." And, he violates two special restrictions: "Special restrictions on painful experiments on dogs, cats, &c. Notwithstanding anything in this Act contained, an experiment calculated to give pain shall not be performed without anæsthetics on a dog or a cat, except on such certificate being given as in this Act mentioned, stating... that for reasons specified in the certificate the object of the experiment will be necessarily frustrated unless it is performed on an animal similar in constitution and habits to a cat or dog, and no other animal is available for such an experiment" and "Absolute prohibition of public exhibition of painful experiments. Any exhibition to the general public, whether admitted on payment of money or gratuitously, of experiments on living animals calculated to give pain shall be illegal" (xlvi).
- 24. Interestingly, H. G. Wells's *The Invisible Man*, which also appeared in 1897, includes a protracted and gruesome scene in which Griffin, the invisible man, describes stealing his neighbor's cat in order to test his invisibility formula; he too, clearly, violates several of the clauses of the Acts, which leads to his being evicted: "And there was someone rapping at the door. It was my landlord with threats and inquiries. . . . I had been tormenting a cat in the night, he was sure. . . . He insisted on knowing all about it. The laws of this country against vivisection were very severe, he might be liable" (103; ch. 20).
- 25. When, for example, Sydney explains matter-of-factly to Dora Grayling that he will need a (second) cat to demonstrate his new weapon to her, the conversation shows Sydney operating on quite a different set of assumptions from his companion:
 - "And do you suppose that I would have sat still while a cat was being killed for my edification?"
 "It needn't necessarily have been a cat, but something would have had to be killed, how are you going to illustrate the death-dealing propensities of a weapon of that sort without it?"
 - "Is it possible that you imagine I came here to see something killed?"
 - "Then for what did you come?" (Marsh 156; ch. 19) It is possible, I think, to read this passage as an indictment, not just of Sydney's violence, but of Dora Grayling's naïve complicity with it she admires Sydney's manly, energetic, entrepreneurial qualities, but she does not want to inquire too closely into what those qualities might actually lead to.
- 26. The final stanza of Owen's poem will be familiar to most readers: If in some smothering dreams you too could pace

Behind the wagon that we flung him in,

And watch the white eyes writhing in his face, His hanging face, like a devil's sick of sin; If you could hear, at every jolt, the blood Come gargling from the froth-corrupted lungs, Obscene as cancer, bitter as the cud Of vile, incurable sores on innocent tongues, – My friend, you would not tell with such high zest To children ardent for some desperate glory, The old Lie; Dulce et decorum est Pro patria mori. (lines 17–28)

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