

## "One Remarkable Evening": Redemptive Science in Wilkie Collins's *Heart and Science*

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In his Preface "To Readers in General" at the start of his 1883 novel, *Heart and Science*, Wilkie Collins asks his audience to concentrate its attention on the topic of vivisection, the controversial scientific practice at the centre of the book's plot.<sup>1</sup> To assist his readers in doing this, Collins borrows details from contemporary debates about the practice and describes its damaging social effects: the novel's arch-villain, the vivisectionist Dr Nathan Benjulia, as well as the scheming Mrs Gallilee embody what Collins terms "the result of the habitual practice of cruelty (no matter under what pretence) in fatally deteriorating the nature of man" (38). Though Collins knew of the "detestable cruelties of the laboratory" from pamphlets he had read on vivisection, he aimed his own book to "keep clear of terrifying and revolting the ordinary reader," a practice of other antivivisection texts with which he disagreed (Collins to Cobbe 1882, qtd. in Farmer 370). Though his Preface promises to offer only "temperate advocacy" for the antivivisectionist cause – Collins professes to leave "the picture to speak for itself" – the narrative is saturated both with lurid allusions to vivisection, such as Benjulia's nonchalant cleaning of his bloodied hands on his coat-tails, and with heavy-handed moral judgements lamenting the consequences of an "education, directed to scientific pursuits" (38, 287). Collins's denunciation of medical experimentation, which culminates in Benjulia's dramatic suicide, is forcefully compelling, for it appears to show a direct correlation between the rise of the experimental laboratory and the collapse of empathy between humans and other living beings, both human and nonhuman alike. With the final union of the two toothsome and sensitive cousins – the artistically inclined Carmina Graywell and the young doctor Ovid Vere – triumphing over the humiliated scientifically-obsessed villains, the novel appears equally to suggest that science as a pursuit exists in conflict with, rather than in support of, the culture that practices it. Moreover, it seems to insist that science remains, ultimately, subordinate to that other expression of humanity: love.

Scholarship has been quick to note the way in which this fatalistic picture of the scientist seems to carry a damning message not just of the 'Savage Science', but of science in general and its place in nineteenth-century culture, and such an interpretation of *Heart and Science* is borne out in recent critical readings of the book. In her focus on the portrayal of women and science in Collins's novel, for instance, Patricia Murphy argues that, in spite of the book's title, the plot "presents 'heart' and 'science' as irreconcilable" (112). Likewise, Tamara Wagner argues that the novel's "antivivisection mission" is merely the sensational core of "its criticism of amateur scientists in general" (496). For Steve Farmer, the novel is nothing less than "a sardonic condemnation of the world of modern science" (13). Laurence Talairach-Vielmas uses even stronger language: "throughout the novel science is equated with villainy" (153).

In contrast to such interpretations of Collins's novel, this essay aims to complicate the way in which this text has hitherto been read by reconsidering it as a narrative that portrays science as a potentially positive force, one that even encourages human sympathies to grow rather than atrophy. It thus follows Tess Cosslett in "draw[ing] attention to the positive ethical and aesthetic implications of Victorian

science as they appear in literature," rather than continue to relegate it to the realm of the villainous and morally corrupt (10). Though Cosslett does not examine Collins's writing in her exploration, *Heart and Science* especially warrants – and can benefit from – the application of this critical direction. Thus, this essay looks at the interplay between characters' scientific objectivity and romantic subjectivity from the opposite direction than other critics of *Heart and Science*: not how heart comes to influence science, but how the scientific life comes, in fact, to enhance a sense of social responsibility. It therefore offers a more nuanced view of Collins's critical engagement with contemporary scientific practices: rather than the scientific language "serving little or no function" and instead of revealing the scientific dilettantism Collins has been accused of, the novel's attention to scientific details shows him being more sensitively aware of the numerous ways – negative, certainly, but also significantly positive – science was integrated into the everyday (Farmer 42; see also: Robinson). This argument also offers a more complex reading of *Heart and Science* itself: though the practice of vivisection is undeniably portrayed as morally destructive, this essay does not reject the novel as merely one more of Collins's mission novels, nor does it accept that Benjulia's and Mrs Gallilee's social crimes make a "mockery of scientific investigation," as Sparks asserts (25).

Much of the science in Collins's novel is positive, or, as Cosslett has expressed in her study of Eliot, Tennyson, Meredith, and Hardy, "imaginative, human and redeemable," as well as potentially redemptive for the characters who practice or learn it (10). Moral degeneration does not attend all science in the novel; nor does the novel, I suggest, unequivocally articulate the more generalised "fears of contemporary science" other critics have identified (Farmer 9). Instead, like the romance plot that flows in and out of the novel's vivisection drama, so too does a more benign portrayal of popular science: the ways in which people who were not necessarily members of the scientific elite engaged with topics and objects of scientific enquiry during the period, and how these activities made their lives better. Throughout the novel, kinder, gentler portrayals of science – botany, public lectures, bedside medicine, a romantic visit to the Zoological Gardens – push against the deeply negative portrayal of vivisection, showing when and how science is both an appropriate and necessary medium for positive human interaction. From this perspective, and in contrast to those critics who put heart ahead of science in the plot's romantic conclusion, popular science may be seen to support the characters' burgeoning romance rather than vice versa: science ultimately enables, rather than obstructs, the plot's positive, romantic conclusion. Thus whereas vivisection is condemned for separating individuals from their sympathies, science itself, the novel ironically reveals, can also bring them together.

### Science as Obsession and Vanity

The novel's beginning seems to set science in opposition to romance. Almost immediately after the cousins meet and comprehend their romantic destiny, Ovid, who through overwork can turn his mind "to no good medical use," travels to Canada to convalesce by tramping through the wilderness (Collins 100). Remaining in London, Carmina languishes under the care of her scheming aunt, Mrs Gallilee: Ovid's mother, amateur scientist, and society friend of the sinister Dr Benjulia. When Carmina is maltreated by her aunt, she develops brain disease – the very ailment Benjulia is obsessed with mastering through vivisection – and her life becomes the contest between Benjulia's watchful neglect (he wants Carmina's brain) and Mrs Gallilee's grasping ambition (she wants Carmina's inheritance). Unexpectedly returned from

Canada with renewed social as well as medical vigour, Ovid rescues Carmina from both her aunt (his mother) and the surgeon (his colleague), cures her brain disease and transforms her into a happy bride, appearing to show that, in Tabitha Sparks's words, the "scientific plot [. . .] competes with, but is ultimately trounced by, the marriage plot" (22). With the two plot lines viewed in such juxtaposition, Collins's unequivocal condemnation of vivisection has unsurprisingly been translated into a more generalised dismissal of science as a positive – or even neutral – social practice in the book, and the novel treated as one of many from the period that show science, as Tess Cosslett puts it, as "dreary and dehumanizing" (1).

The use of science as a subtext for a romantic plot, however, reveals its neutrality and social malleability. Even though he defines the novel as a cautionary tale against a life of scientific enquiry, Farmer concedes that *Heart and Science* does offer "an accurate depiction of the world of modern science" at the time of Collins's writing (8). Collins's success as a writer of middle-class fiction underscores his ability to play to the "habits, [. . .] attitudes, and even [. . .] anxieties" of his audience, and his inclusion of science as a character in its own right in *Heart and Science* reflects his audience's own "system of values": science was part of culture (Lonoff 79). The ubiquity of science in the novel bears this statement out: as Jane Camerini notes, observational science in the nineteenth century was "enormously popular" with audiences "as varied as the culture itself," and this popularity of science, as well as its social aspect, underscores Collins's plot (355). In his work on how scientific knowledge was disseminated to the general public, Bernard Lightman calls attention to the excitement that attended new discoveries: "[s]cientific knowledge seemed to offer the magical password [. . .] that unlocked the doors to exhilarating new worlds" (3). The ubiquity of scientific events and objects in the novel – as well as the range of subjects under discussion – is commensurate with what Geoffrey Cantor and other historians of science term its absolute "cultural embeddedness" in the period; science was, in Cantor's words, "a fundamental and integral part of the cultural economy of nineteenth-century Britain" (Cantor et al. xvii). This omnipresence is clear in the minor as well as in the principal characters in *Heart and Science*: Mr Mool, the Gallilee family's gentle lawyer, for example, is an amateur "enthusiast in botany," while Mrs Gallilee enjoys attending scientific lectures as part of "an immense audience" (Collins 75, 126). Likewise, though he reads them only for notices of books published by his competitors, Dr Benjulia subscribes "to every medical publication in England," purchasing a collection large enough to fill a "huge basket" every week and paralleling what Shuttleworth and Cantor identify as a widespread and "eager interest in [science's] implications" during the period (Collins 317; Shuttleworth and Cantor 13). For a diversion and, more significant to the argument offered here, with a view toward romance, Ovid takes his cousin, Carmina, to visit the birds and monkeys at the Zoological Gardens, a "reservoir of taxonomic data" which Collins's contemporary readers would have recognised as a location for both "experimentation and exhibition," bringing scientific enquiry together with spectacle in a public, accessible forum (Livingstone 57, 62).<sup>2</sup> That Carmina and Ovid have their first romantic encounter at the Zoo underscores the ways in which science is naturalised in the novel as a mode of positive social exchange: they express their "intelligent curiosity" about the natural world even as they explore each other as potential lovers (Collins 105). More generally, science also carries with it a high cultural currency: for his *hors-de-vivisection* scientific accomplishments, Benjulia remains a "famous doctor" and a "celebrated colleague"; his profession as a physician is described by other characters as being even "something much better" than "a nobleman" (184, 242, 97).

Although Mrs Gallilee's "scientific obsession" is commonly interpreted as an object of ridicule, her keen participation in amateur science also reveals its attractions – and accessibility – as a pastime, a phenomenon of particular interest given her gender (Murphy 109). Barbara T. Gates points out that women were officially excluded from the professionalizing scientific societies in the nineteenth century, but that "without women's help, Victorian scientific endeavour would have been considerably diminished" (67). Working with fewer resources, little or no official training, and outside the laboratories, women were still instrumental in the development of scientific ideas through collecting, illustrating, narrating, and disseminating, activities in which Mrs Gallilee shows herself to be active. Though Mrs Gallilee has a boudoir where she finds "sanctuary" from the pressures of her household (in order to do her scheming), her "library table" is a socially productive space, and one that leads to more satisfying – and more socially acceptable – accomplishments (Collins 180, 286). Indeed, in her boudoir, Mrs Gallilee plots the private calculations for manipulating her niece, husband, and son that make her one of the novel's villains; in her library, however, she prepares for a much happier life in public, learning about, planning to attend events on, and preparing her responses to discoveries "of the deepest scientific interest" (222). Thus, though Murphy contends that the novel "carves no space in which a woman can follow scientific interests," Mrs Gallilee's character shows a myriad of ways in which this can be so. Ironically, it is in her domestic, not her scientific life that Mrs Gallilee is most isolated (106). Mrs Gallilee's pursuit of science is in fact highly social – she attends "lectures and addresses by dozens" – reflecting not only the ways in which non-scientists could engage with such topics, but also the reality that the exploration and discussion of scientific questions was in fact a source of pleasure for many (Collins 286). As Lightman notes, popular science (i.e., that which was conducted, shown, and discussed in the lecture hall, the salon, and the theatre, rather than in the laboratory) could be "dazzling," and audiences had the pleasure of "encountering exotic animals and plants, and [being witness to] heated controversies about the validity of novel theories" (3). Collins may have intended Mrs Gallilee's "rehearsal of her performance in the Comedy of Atoms" and her gushing enthusiasm for coprolites ("fossilised indigestions of extinct reptiles") as a spoof on popular science, just as his narrator dismisses those whom she goes to see – "Mr. Always Right and Mr. Never Wrong" – as exhibiting more "the natural tendency of man to believe in himself" than in any discovery of actual importance (Collins 111, 286). The invalidation of Mrs Gallilee's activities implicit in these acid descriptions, however, obscures what is a more interesting perspective on her participation in such public discussions: they align her with the nineteenth-century phenomenon Gates identifies of women who participated in a public dialogue which they found satisfying and interesting. As Gates argues for Mrs Gallilee's scientific peers from history, women interested in and able to pursue science "had to find special ways of making their collections count or of getting their scientific work recognised," but they did so nevertheless (Gates 88). Murphy enumerates Mrs Gallilee's attempts to involve herself in the discourse: she assiduously follows a programme of "determined self-instruction, lecture attendance, research efforts, and discussion with noteworthy professors and other experts" (109). Though Murphy interprets Mrs Gallilee's dedication to science as a "derogatory" reflection on her character, it is possible to read Mrs Gallilee's activities more positively, as evidence of the ways in which science helped to build community, particularly for women like Mrs Gallilee, who found themselves unsatisfied by the confines of domestic life. Though it is true that Mrs Gallilee remains excluded from

more official circles (and their scientific societies) because of her gender, she is certainly not transformed into a "passive [object] to be scrutinised and probed" (Murphy 106). Indeed, vibrant and varied alternatives remain open to her in the form of private correspondence, public lectures, and her own well-attended *conversazioni*, at which the greatest "Professors of the civilised universe [rally] round their fair friend" (Collins 327). Though allegedly she cannot go to the scientific experts, Mrs Gallilee's own creative and "special ways" (as Gates terms them) of circumventing science's professional restrictions allow those experts, with no reservations and even with pleasure, to come to her.

Certainly, Dr Benjulia's cruelty toward animals is reprehensible, but his root crime is social ambition: for Benjulia, vivisection is a path to celebrity. The discovery of the origins of and cure for brain disease is "the grandest medical discovery of this century"; it is in turn for Benjulia the easiest way of securing "the fame that will keep [his] name living hundreds of years hence" (Collins 190).<sup>3</sup> Working not for science but for his "own satisfaction – for [his] own pride –" Dr Benjulia is thus emotionally isolated even before he embarks on his course of vivisection, and he vivisects only because he lives in "perpetual terror of being forestalled by [his] colleagues" (190). Like Drs Jekyll and Moreau, Benjulia's fictional peers (and Frankenstein before them), Benjulia's obsession is both the cause and the product of his powerful narcissism. Anne Stiles notes that fear of such monomania extended beyond fictional cautionary tales to influence Victorian "educational philosophy, which promoted mental balance by avoiding intellectual over-specialization" (329). Though he attempts to hide it from his brother, Lemuel, Benjulia's terror runs much deeper than simply the fear of professional competition. Whereas he claims that his "medical studies [. . .] reconcile [him] to [his] life," in fact his scientific work makes him question his end goal (245). Benjulia's work horrifies him, and this is revealed in his stuttering description to his brother of his experience at the operating table: "My hands turned cold – my heart ached – I thought of a child I sometimes play with – I suffered – I resisted – I went on" (191). Though normally a man who expresses himself with clinical precision, when Benjulia describes his work his broken syntax reveals the intensity of the conflict between his scientific morals and his social ones. His heart aches in sympathy with the monkey, and he must fight against the sympathizing effects of his science in order to reach his goal. Jed Mayer discusses the complicated topic of emotions in experimental science in the period, noting that public revelations of laboratory practices were not only difficult for the "lay reading public," but also that they revealed "animal researchers to be equally passionate, involved in deeply emotional relationships with their nonhuman subjects" (399). This "emotional catharsis" was used as proof of vivisection's importance: the pain it caused the operator (and not just the research subject) implicitly authorised "animal experimentation for human benefit" (408). Significantly, Benjulia does not apply this argument concerning the value of vivisection and the links it establishes between humans and nonhumans to his defence of his practice. Rather, Benjulia articulates this profound disconnect between his scientific and social selves by admitting his attachment to Zo, a child (and Ovid's half-sister) whose friendship intrudes on and compromises his ability to objectify his practice. Even for Benjulia himself, vivisection is "hideous," a sentiment that, at least in part, offers him a glimmer of redemption at the end of his life (183). Indeed, before his suicide, Benjulia ultimately chooses Zo over the monkey, bequeathing his estate to her on the same evening he sets his animals free. His final regret is not one that points to invasion, pain and

scientific power, but a return to a more innocent childish pleasure: he "should have liked to tickle her once more" before he dies (Collins 321).

For Mrs Gallilee as well, vanity is more the source of her villainy than science. Significantly, the book's narrator describes vanity in parallel terms to vivisection: it is "savagely suspicious and diabolically cruel" (204). Mrs Gallilee's amateur science appears to be focused solely, like Benjulia's, on discovery and recognition; like him, Mrs Gallilee does not appear to use science well. Rather, she is characterised as what James Paradis identifies as a well-known cultural trope, a "zealous myopic philosopher lavishing [her] intellectual powers on the world of trivia" and thus, like Benjulia, an apparent cautionary example of the moral pitfalls threatening the unthinking practitioner (145). However, the sarcasm emanating from the narrator's description of Mrs Gallilee as a "matchless example [. . .] of the healthy influence of education, directed to scientific pursuits" does not erase evidence that her mercenary character is established long before her transformation into a "learned lady," and she is known equally for her "jealous, envious, and money-loving propensities" and the panache of her scientific *conversazioni* (Collins 287, 286, 48). Science, in fact, has little to do with Mrs Gallilee's "inbred capacity for deceit"; when she becomes the "incarnate Devil," it is not on account of science, but money (76). Indeed, though science may initially seem to be the source of her villainy, it does not add any negative influence, and may in fact be read positively despite the narrator's protestations. More specifically, the public events she both hosts and attends, and her fervent correspondence with various scientists keep her distracted from her designs on her niece's fortune, intellectually engaged and, perhaps more importantly, on her best behaviour.

By applying Mrs Gallilee's own longing to dissect whatever is before her to her own story, it is possible to discern a sympathetic interpretation of her enthusiasm for science; indeed, it both offers her solace and redeems her character. After her sister's more lucrative marriage and her son Ovid's success at school, Mrs Gallilee turns to science as consolation for her financial and maternal disappointments; in her growing estrangement from her family as well as her increasing financial pressure, it becomes her sole sense of comfort. Murphy interprets Mrs Gallilee's quest for scientific fame as "inherently flawed" because a product of "envy, self-aggrandisement, and greed," but there is also a different perspective on offer (110). While the way in which Mrs Gallilee pursues science is indicative of her more systemic character flaws (such as the ones Murphy enumerates above), science is not just an expression of her villainy. Instead, it offers Mrs Gallilee both a distraction from her pecuniary disappointments and a mode of escape from a social world that has moulded her into the avaricious, status-obsessed woman she has become. Her intellect is never cultivated by others; she is entirely self-taught, and her father's early opinion of her is all the more depressing for its utter conventionality: after his wife's death, he considers that his two teenaged daughters (Mrs Gallilee and Lady Northlake) "would be married – and there would be an end to them" (Collins 70). Unlike Benjulia, who has the freedom to retreat to his private laboratory whenever it suits him, Mrs Gallilee cannot simply remove herself from society, and she is weighted with a heavy social burden. She is closely observed by her peers, her betters, as well as her subordinates, and constantly – and quite legitimately – worries about exposing herself "to unfavourable comparison with other people of [her] rank in society" (147). Because of this social imprisonment – metaphorically, at least, she, like the monkeys at the Zoo, is in a cage – her pursuit of science can be read as potentially liberating: if her one "pride and pleasure in life is the pride and pleasure of

improving [her] mind," it gives her both a direction in which to focus her social energies and a ready excuse for independence and eccentricity (147). Instead of being constantly confronted by her disappointing subjectivity, Mrs Gallilee's science offers at least occasional snatches of objectivity. Collins may have meant it as a sharp rebuke, and critics have tended to read it as such, but his narrator's advice to Mrs Gallilee as her financial ambitions crumble around her turn her into a tragic figure: "Look to your library table, learned lady, and take the appropriate means of relief that it offers" (286). Unexpectedly, perhaps, the best defence of the value of scientific education for women comes from a statement from Mrs Gallilee herself, whose dwindling role in the domestic sphere leaves her unfulfilled: "My son fills my heart. But the school, the university, and the hospital have all in turn taken his education out of my hands. My mind must be filled, as well as my heart" (71-2). Collecting her "exquisite instruments" for want of other options, Mrs Gallilee turns from the disappointment of private, domestic responsibilities toward a growing community of people – of "learned friend[s]," no less – with things to do and discuss (72, 327).

For all her social villainy, Mrs Gallilee's science thus represents a positive force in her life, one that makes her happier and takes the pressure from those she tries to bend to her will. Indeed, characters around Mrs Gallilee – those most subject to her manipulations – recognise the role of science as an effective social pacifier for her, and use it to their advantage. After an early skirmish with Carmina over Ovid's affections, for instance – during which Mrs Gallilee accuses her young niece of "false modesty," – a charge that in itself sends the hypersensitive and antiscientific Carmina into an emotional spiral – Mrs Gallilee retreats to her library in order to calm her nerves (115). When trying to make amends by sending a written apology, Carmina is cautioned by Miss Minerva, one of Mrs Gallilee's more experienced servants: "Leave her to dabble in science first. [. . .] When she has half stifled herself with some filthy smell, or dissected some wretched insect or flower, she may be in a better humour" (117).<sup>4</sup> Though this advice is spoken "in tones of immeasurable contempt," they point to one of the unsung virtues of science in the book: its calming influence even on the novel's "incarnate Devil" (117, 76). Science is thus not the cause of, but an effective distraction from the travails of the novel's dysfunctional domestic milieu.

### Science as Instruction and Delight

Although the practices of Dr Benjulia and Mrs Gallilee seem to offer condemnations of science, they should not be the standard by which science is measured in the novel. Science here is not merely a medium through which villains manifest their vanity; indeed, it is through the social and humane scientific practice of characters like Mr Mool and Ovid, through the dovetailed plotlines of Carmina's illness and recovery and scientific education, and even through Benjulia's moments of doubt and Mrs Gallilee's therapeutic meditations at her library table that readers can discern science's redemptive potential. While the narrator keeps drawing readers' attentions to the isolation and secrecy of science, the novel's other characters use it to draw closer to one another, and to smooth over and resolve awkward social moments in the plot. Placed in juxtaposition with the formidable Mrs Gallilee, for example, Mr Mool demonstrates what Cantor calls the "cultural embeddedness" of science as well as its potential role as a social lubricant (Cantor et al. xvii). During his highly charged meeting with Mrs Gallilee to discuss the contents of her brother's will (Carmina's father), Mr Mool recruits a troupe of "vegetable allies" in Mrs Gallilee's potted ferns, it having occurred to him "that ferns might be turned to useful and harmless account as a means of introducing a change of subject" as he prepares to deliver bad news to

his client (Collins 79, 75). Several times during this tense exchange, Mool recalls his client's attention to "the fragrant root-stock of the American fern" in order to distract her from her calculations, and in the face of Mrs Gallilee's avarice, the plants do succeed for a time in "justifying [Mool's] confidence in their peace-making virtues" (76). Likewise, during yet another confrontation with Mrs Gallilee over her niece's suspected paternity, Mr Mool "suddenly [plunges] his face into his vase of flowers" in order to buy time when formulating his response (193). Having received the bouquet from a grateful client, Mool enjoys, "[as] a man, [. . .] the lovely colours of the nosegay." As "a botanist, he [laments] the act which had cut the flowers from their parent stems, and doomed them to a premature death" (191-2). For Mool, already a sensitive man (he is a lawyer who blushes), botany does not compromise his innate sensitivity; rather, it enhances it, enabling a breadth and depth of expression for his empathy with all life forms.

Perhaps because the book's hero, Ovid, is so florid in his love for his cousin Carmina, critics have tended to celebrate his "superior character [and] great love" more than his medical prowess, but both together, and the science most of all, lead to the salvation of Carmina and to the final destruction of his scientific, not romantic, rival (Sparks 27). In his simple adoration of Carmina, Ovid is undeniably less compelling a character than the taciturn Benjulia, but his dedication to his craft, as well as the sacrifices he makes to practice it, run startlingly parallel to the villainous physician. Readers meet Ovid on the verge of nervous exhaustion caused by overwork; likewise, Benjulia, who eats "at his dreadful table; snatching an hour's rest occasionally on the floor," sees his future laid out before him in the laboratory: "I think of it, I dream of it, all night. It will kill me" (Collins 211, 190). Like Benjulia, who is "scrupulously polite [but] always cold in his politeness," Ovid is "rather abrupt" with patients, and he is known as "cooler, a great deal cooler with women" than others of his profession (99, 67, 48). Again like Benjulia, Ovid is unashamedly "devoted heart and soul to his profession," and possesses no hobbies other than perfecting his craft: science is his heart (45). Just as Benjulia rejects his brother's company as anathema to his lifestyle, Ovid "is not diverted by family influences from the close pursuit of his profession" (48). Significantly, both physicians pursue their scientific discoveries in secret: Benjulia's laboratory has no windows, while Ovid's unfinished manuscript (on an unidentified topic) remains "locked up" whenever he is not working on it (46). In their commitment to improving medical science, the two men are thus not different in degree; they are, however, different in kind as well as in method: Benjulia relies on experiment, whereas Ovid's research remains experiential. Though equally dedicated to his work, and equally willing to sacrifice himself to it, Ovid's approach to medicine distinguishes him from Benjulia by his strict adherence to bedside rather than laboratory practice. For Benjulia, whose vain heart overrides his scientific scruples, knowledge is personal power; he continues with his experiments for "the unutterable pleasure in beating other men" (190). In addition, where other characters' involvement in science is primarily a social exercise, Benjulia intentionally isolates himself, disconnecting his science from the community it is meant to benefit. As Valerie Pedlar argues, vivisection in the book is thus "associated with the secrecy of shame, [. . .] concerned with personal gain and [. . .] inimical to the wellbeing of society" (171). Benjulia's antisocial tendencies, however, do not equal a synecdochal condemnation of science as a whole. In marked contrast to Benjulia's off-putting professionalism and secrecy, Ovid's dedication to medicine is his only way of expressing his interest in others: a socially awkward man even under normal circumstances, Ovid is at his sympathetic best performing house calls to ill

patients "as an act of atonement" for his occasionally inconsiderate behaviour (Collins 50). His characteristic abruptness, even with patients, stems from his dedication to his craft and "his quick perception" of their ailments, and though this causes him to interrupt them in his eagerness to diagnose, he does so "too pleasantly to give offence" (67).

Just as Ovid and Benjulia initially provide alternative readings of science's potential, Carmina's charming and "deplorable ignorance" of all things science appears to triumph over Mrs Gallilee's hard-hearted scientific ambition (58). Carmina begins as "an ideal Victorian woman who demonstrates a conviction that science is a masculine field," while Mrs Gallilee's unquenchable enthusiasm for science "calls her motherly qualities into question"; Carmina seems to represent a comforting status quo to which the novel gratefully returns (Murphy 106; Wagner 496). Like the professional ties that bind Ovid and Benjulia, however, Collins's delicate heroine and robust villainess are not as far apart as might at first appear: both women – and, in fact, especially Carmina – show the ways in which science can be used to sustain, and even enhance, social relationships. Simply put, Carmina's scientific education in the novel enables her marriage to Ovid. Likewise, for Mrs Gallilee, her scientific friends are all she has left in the aftermath of her husband's flight and her daughters' abduction; with all she has lost, and in the ruins of her other social disappointments, her delight in finally hosting a perfect *conversazione*, during which "three hundred illustrious people [are] charmed, surprised, instructed, and amused," gives her the only moment of happiness she experiences in the book (327).

For Carmina, her induction into the world of science is one that builds community: initially isolated by language, culture, and loss, Carmina learns the craft, as well as science's potential for expressing sympathy, from her loving fiancé. When she first comes under the attention of Ovid and his mother, Carmina professes not just ignorance of, but distaste for all things scientific: to her, these things are "ugly" (168). In the hands of Dr Benjulia and Mrs Gallilee, she certainly interprets science as such. Her inability and even unwillingness to see beyond the surface of things makes her vulnerable to Mrs Gallilee's social predations, and Carmina's reluctant companion, Miss Minerva, exclaims in exasperation, "You simpleton, have you no instincts to protect you?" (162). Carmina does not lack instinct, but rather curiosity, and, moreover, her initial distaste for scientific activities perpetuates her isolation. This can be seen in her interest in Mrs Gallilee's pursuits, which extends only so far as to pick up – and immediately drop – a copy of *Curiosities of Coprolites*, which initially catches her attention by the "pretty dress of its binding," a gesture which Mrs Gallilee notes with disdain (111). Happily, however, science in the "pretty dress" of the "fainting, enervated, nostalgic Ovid Vere" is much more to Carmina's taste, and through his ministrations to her and her marriage to him, Carmina is indoctrinated into the world of medicine and science, its opportunities as well as its pleasures (Wagner 494). Indeed, science prefaces and comes to dominate the narrative of Ovid and Carmina's burgeoning romance: before readers know of the marriage that will conclude the book, the narrator describes Ovid as moving toward "a patient in the future who was personally still a stranger to him" (Collins 46). On their second meeting, Carmina playfully dismisses Ovid's medical advances (after fainting on their first meeting, she passes a restless night) by exclaiming, "I am not going to be your patient yet," predicting the medical drama as much as the romance to come (85). Their first outing together, during which Ovid takes Carmina to the Zoological Gardens to see the birds, puts their budding romance against a scientific backdrop, and the language of love they speak to each other is curiously intermingled with

zoological facts as well as the confidentiality of doctor and patient. Medicine and romance flow equally between Ovid and Carmina, with Carmina becoming Ovid's eager nurse even as he monitors her health, and as they fall in love.

Ironically, Carmina actually receives her first lesson in medicine from Dr Benjulia, not Ovid, which again shows even Benjulia's science as possessing some positive social value. After awkwardly professing his love to Carmina, Ovid collapses in the Gardens and is tended by Benjulia, who lays his hand where Carmina's should be: on Ovid's heart. When assisting Benjulia in tending to her unconscious cousin, Carmina carefully watches Ovid's vital signs. As they return, Carmina finds herself "so relieved that she [is] able to listen to [and] join in" Benjulia's running medical monologue, in which he describes his work in metaphorical terms which Carmina, a lover of poetry, can understand: "This pump is out of order; and I'm the carpenter. Give me time, and I'll set it right again" (110). When Ovid comes to and Benjulia rises to leave, Carmina has already assumed the role of medical assistant, asking not just for Benjulia's diagnosis of Ovid's condition, but also for his recommended course of treatment, while with a "fond and gentle hand, she [wipes] the moisture from [Ovid's] forehead" (110). In this scene's eventual reversal – in the story's denouement, Ovid nurses Carmina back to health – this dual gesture of affection and medical attention is echoed in Ovid's subtle monitoring of Carmina's pulse, which he does "under pretence of holding her hand" (312). Though Teresa, Carmina's leathery duenna, admonishes Ovid for thinking of Carmina as a problem to be solved – Carmina "doesn't want a doctor. She wants a friend" (84) – in fact, Carmina and Ovid are in need of both, but of medical aid first.

Carmina's dual role as both patient and romantic interest is, like Ovid's, key to the reconciliation of the two plot lines; though Straley argues that "marriage provides the antidote to scientific experiment," good science must come first if both romantic protagonists are to survive. Indeed, before the novel's romantic resolution can occur, Ovid's bedside cure for Carmina must triumph over both death and Benjulia, proving the power of science to heal both bodies and narrative rifts (361). Emotion does not "overcome the callous practice of material science"; rather, material science enhances romantic sympathy (Sparks 24). Though initially Carmina is reluctant to engage with any topic scientifically oriented – indeed, "Mrs Gallilee's science [seems] to frighten her" – her role at the end of the novel is one that necessarily embraces science and medicine, and she is a stronger and more interesting character because of it (Collins 88). As Ovid remarks to Carmina in one of his many turgid letters from Canada, "My future career is an object of interest to my future wife. [. . .] who will be so glad to hear of it as you?" (160). Just as the socially inept Ovid learns how to talk to Carmina by treating her as a patient, Carmina learns through Ovid that science in fact embodies the finer points of humanity: Ovid's training as a medical man allows him to express greater sympathy with others. His description of his death-watch in a Montreal garret – "any man but a doctor would have run out of the room, the moment he entered it" – stands in stark contrast to Carmina's early hypersensitivity against things that are "ugly" (159). In writing to his future wife "as if she was a medical colleague," Ovid treats Carmina as he would have her as his equal, involved as an active participant "in her husband's intellectual world," a sharp contrast to Mrs Gallilee's early relegation to the social dustheap of an unhappy marriage (Collins 160; Le-May Sheffield 20). As Suzanne Le-May Sheffield notes, "the idea that the scientifically educated woman could provide intellectual companionship for her husband" was frequently promoted in periodicals of the period, and Carmina's willingness to learn science from Ovid seems promising to their success as a couple (20). For Ovid, Carmina must be both his

colleague as well as his wife, since he is now equally devoted to both sides of his life, the science as well as the heart. Significantly, science still comes first, since, as he explains to Carmina, "I was a doctor, before I was a lover" (Collins 206).

### **Boon Companions**

*Heart and Science* illustrates the potentially devastating personal cost of a preoccupation with science, but it does not treat these moral pitfalls as inevitable, nor does it treat science as the villain it initially appears to be. In the triumph of her final *conversazione*, Mrs Gallilee perhaps fails to learn the lesson that science cannot, ultimately, reconcile one to a life of emotional isolation, but it provides her solace in the face of her deep social disappointments. More significantly, before his death, Dr Benjulia wonders if in fact there is a better path – an alternative to vivisection, but not to science as a whole; to look "higher than his torture-table and his knife" is not necessarily to reject science, but to seek out alternatives to the cruelty and pain he as a scientist abhors (247). As Collins himself wrote to Francis Power Cobbe, Benjulia was meant to be "an object of compassion" in spite of his crimes (Collins to Cobbe 1882, in Farmer 370). The ultimate triumph, of course, lies in Carmina and Ovid's marriage, which shows not only that heart and science are and must be boon companions if either is to succeed, but that science, significantly, stands on its own as a positive social force, even for those who try to bend it to their ends.

## Notes

1. *Heart and Science* was first published in the *Belgravia* in serial form between September 1882 and June 1883. The book's recent Broadview editor, Steve Farmer, notes that the serial received only "modest critical praise" and did not raise sales of the magazine (24).

2. It was also a space that celebrated British imperialism, as "the vast array of specimens displayed [. . .] served to draw attention back to Britain's ecological imperialism" (58). This identification of science as an imperial practice is further supported in *Heart and Science* by Ovid's sojourn in Canada, where he not only recuperates his medical mind in the wilds of the bush, but also makes his grandest scientific discovery, which he uses to save Carmina upon his return to London.

3. Cantor and Shuttleworth observe that in the nineteenth century, an active line of scientific enquiry was "the question of whether the workings of the mind could be approached using the methods and insights of physiology" (9). See also: Talairach-Vielmas and Wiesenthal.

4. This distasteful image of middle class hobby science echoes the opinions of another of Collins's characters, Gabriel Betteredge in *The Moonstone* (1868), who identifies science as a rather nasty method middle class people devise of "get[ting] through the time" (62). My thanks to Elizabeth Anderman for pointing out this connection.

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